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## THE "MALADIE DE COIT," OR VENEREAL DISEASE OF HORSES IN THE UNITED STATES.

In the early part of July, 1887, Dr. James Law, Inspector of the Bureau of Animal Industry, attended a meeting of owners and breeders of horses at Clinton, Illinois, which was called for the purpose of devising means for the suppression and eradication of the *maladie de coit* (venereal disease of horses), which was prevailing to an alarming extent among equine animals in De Witt and adjoining counties in that State. While at this point he made quite a thorough investigation as to the character of this outbreak and the extent to which the disease prevails among horses in the locality above indicated, the results of which he embodies in the following report :—

"I left Chicago on the night of July 6th, and reached Bloomington, McLean County, next morning, where I saw in the stables of Dr. Williams three Norman draught stallions, the property of Harold and Culbertson, of Wapella, De Witt County, and in the advanced stages of the venereal disease. These, in company with sixteen others, were imported by their present owners in 1884.

I next went to Wapella and drove out to Mr. Carle's, where I found a gray stallion of the same importation in a still more advanced stage of the disease, showing, beside the local lesions, considerable hebitude and paraplegia.

From there I proceeded to the farm of James Somerville, of Wapella, where I saw a mare which had been bred to the Carle horse in 1886, but seemed well till bred again, April, 1887, to the black stallion of Mr. Fischer, Clinton, which she is charged with having infected. This mare is at present badly affected. She had already the characteristic white spots around the vulva before being bred to the Fischer horse, showing that she had already suffered from the specific disease.

I next visited another farm to see a mare alleged to have recovered. She showed in a marked condition the characteristic white patches around the vulva, and in the trot manifested an imperfect co-ordination of movement of the muscles of the hind limbs. Yet we found her doing good work in a mower, and in the absence of a very careful examination she would not have been at all suspected.

From this point I drove to Clinton, where, in the hands of Dr. Morin, I found two more Harold and Culbertson stallions under treatment, and both badly diseased.

In the village of Clinton I also saw two stallions of Mr. Fischer; one, a brown horse, suffered in 1884 from a disease of the generative organs which incapacitated him for breeding for an entire year, but he has now apparently recovered. This horse bears on the left side of the neck at the root of the mane a D brand (Dourin?) which he is said to have had when imported from France. The second Fischer horse is black, excessively fat, with some swelling of the sheath and of the orifice of the urethra, and to a slight extent along the abdominal veins, but is full of life and energy. This is the horse that is supposed to have been infected by the Somerville mare referred to above.

*Diagnosis.*—I have omitted symptoms in referring to the above, and shall only now enumerate such as identify the disease with the *maladie de coit*, or venereal disease of horses, of the Old World.

In the mildest cases in stallions there is only some little swelling of the sheath or scrotum, or of the testicles (primarily of the posterior pointed end). If more extended, swellings appear along the lines of the lymphatics accompanying the abdominal or saphena veins, on one or both sides, and often appearing intermittently. Accompanying these are the minute extravasations or exudations in the skin which result in destruction of the pigmentary layer and the formation of white spots, one-fourth to one-half an inch in diameter, but at times becoming confluent and forming considerable patches. In other cases the sheath remains enormously swollen and the penis pendulous from four to eighteen inches, and in the worst cases apparently incapable of retraction. A scurfy, dry, and even chapped condition of the penis is common, and a puffy swelling of the circular ring near the base of its free or protracted portion is especially so. I saw no especial swelling of the glands as described in books. The testicles are often greatly swollen, rounded, and pendent, measuring as much as eighteen inches and two feet in circumference. Along the course of the lymphatics in different parts of the skin and subcutaneous tissues are somewhat flattened and round or elliptical

exudations or neoplasms, which occasionally burst and discharge a purulent matter. This suppuration sometimes takes place in the sheath or scrotum, and with the discharge there comes a material though temporary amelioration of the symptoms as testified by Mr. Culbertson, a close and intelligent observer. Swelling of the submaxillary lymphatics occurs sooner or later, and in the advanced stages the nasal mucosa are extensively ulcerated and discharges a very tenacious muco-purulent product.

In all cases, except the very mildest, imperfect assimilation and nervous atony are well marked. Drowsiness may be an early symptom, and spiritlessness and dejection are very common, the two most persistent and controlling desires being appetite and the sexual passion. The Carle horse, wasted to a skeleton and with his penis flaccid and pendulous, and retracted only an inch or two when struck, stands persistently in the corner nearest to some mares in another lot, forgetful of hunger or thirst, yet will eat and drink inordinately when urged by his attendant. The nervous atony is seen especially in the waddling, uncertain gait in the hind limbs, the uncertainty being especially marked on turning, the wounds from interfering on the fetlocks and pasterns, and the wasting of the muscles of the hinder extremities. As a rule the hind legs swell considerably in bad cases.

In the mare the first symptoms are swelling, usually at first on one side of the lips of the vulva and in the upper half, later the lower half and even the clitoris are implicated, the vulvar mucosa is congested, and minute spots of extravasation or exudation appear on this and on the adjacent skin, resulting in the white spots already referred to. There is, besides, an increased desire for the male, not continuous, but, according to Mr. Culbertson, lasting three or four days at the first "heat," and eight or ten days at the second. He also contradicts the allegations of an abundant muco-purulent discharge (whether in male or female), and I saw no indication of any profuse muco-purulent flow from the generative passages.

As the disease advances in the mare the swellings extend from the vulva mainly along the lymphatics of the perineum, the mammæ, the abdomen, the thighs, the quarters, and elsewhere. These and the local circumscribed swellings are as in the horse. This similarity extends to the inter-maxillary, nasal, muscular, assimilatory, and nervous symptoms.

Abortions are frequent, or puny ill-developed foals come to maturity, and some show the distinct manifestations of the acute disease in local swellings, sores, and fatal marasmus. In other cases even the diseased mares bring fine vigorous foals to maturity.

*History.*—A complete history of the outbreak is not yet forthcoming; yet the following gives the main facts as I have been able to learn them:

Before 1884 a Clydesdale stallion was brought from some part farther south to Vernon, Tex., and sometime later died of a malady believed to have been the venereal disease. While at Vernon he had been turned into corral with a number of native mares. How it fared with them does not appear, but as deaths are common on the open ranges Mr. Culbertson opines that a few dead ponies would lead to no remark.

From another party, whose name I did not obtain, I learned that Mr. Lemon, the owner of the Vernon ranch where the Clydesdale horse died, brought a lot of mares from that ranch to his place near Clinton, Ill., in 1884, that they infected a stallion there, and a number suffered.

Mr. Harold, of Harold and Culbertson, had a Texas ranch sixty miles south of the Lemon ranch, so that there was ample opportunity for infected mares from the latter joining the herds of the Harold ranch and communicating infection. In April, 1884, Messrs. Harold and Culbertson, of Wapella, Ill., imported 230 Texas horses, among which were 160 to 170 mares from the Harold (Texas) ranch, and the latter were served by Utopia and other Norman stallions belonging to an importation of nineteen made in January, 1884. No disease was noticed that year in either horses or mares on the farm, so that any manifestation must have been very slight. In 1884 these imported stallions served in addition 114 outside mares, of which none were known to have become affected. In this year three of the imported stallions were sold to go to Eureka, Peoria, and Nebraska, respectively, and no ill report comes from them.

In 1885 these stallions served 197 mares, of which four at least (two Texan and two home mares) showed the disease in the fall. Mr. Culbertson cannot say in which it first appeared. The same year one of these stallions died from an unknown cause; two sold to Foley and Seniff, of Wapella, showed the disease later and are now ill, and one sold to a party in Bloomington, and later to W. R. Carle, also showed the disease and is now in its most advanced stages. Nine mares served this year by the Foley and Seniff horses are now dead.

In 1886 one of the imported stallions died of the venereal disease, and a second died probably from the same cause. Two stallions sold to go to California are supposed to have continued sound. Harold and Culbertson lost eight mares from the disease and had others ill, and of 242 services outside his stud some mares are known to have died of the affection, and three surviving

diseased ones have been seen. The great majority have not been examined. Of sixty mares served this year by the Foley and Seniff horses, eight are dead, ten affected, and nine sold. Of mares served this year by the Carle horse two have died and others are ill.

To complete this history I must add the hearsay evidence from Dr. Morin, an irregular veterinarian at Clinton, a man named Daniels, and Mr. Moore, who owned the brown stallion branded D, and sold him to Mr. Fischer, to the effect that that horse not only suffered in 1884, and was incapacitated for service for an entire year, but that he also infected a number of mares before he was withdrawn from service.

*Probable source of the disease.*—So far as the above testimony goes, it seems to exclude the idea of the importation of infection with the nineteen stallions of Harold and Culbertson introduced in 1884. First, no untoward results could be found in mares served by them in 1884; second, those of their number that were sold to distant points in that year appear to have continued sound; third, one of them retained by Harold and Culbertson, but used out of the district, is still sound; fourth, the disease was shown in Harold and Culbertson mares as early as in the horses —late in 1885. Since that date it has been propagated extensively to horses and mares alike.

The suspicion attachable to the Texas mares is somewhat vague. The death of the Lemon horse on the Texas ranche, and the alleged disease of Texas mares on the Lemon farm in Illinois, are suggestive. It has not been shown, however, that the Lemon stud in Illinois has not been interbred with the Moore horse (now Mr. Fischer's) which is testified to have suffered in the same year, or with mares bred to that horse.

The strongest suspicion is apparently to be fixed on the imported Moore (Fischer) horse, branded D. Report says this horse came from France in 1883; served and infected mares in 1884, suffered from a disease of the generative organs in the same year, but has now apparently recovered. This being accepted, it is easy to conceive of the infection on the Lemon Farm in 1884 from this source, and of that on the Harold and Culbertson farm in the autumn of 1885.

If this could be implicitly relied on, it would only be necessary to root out the infection here in Illinois, and to trace every horse sold from the infected locality since 1884.

As regards the locality, the State has agreed to provide inspectors, and a large local committee, with a member in each town, has been intrusted to quarantine and brand all exposed animals. Time must show how effectively this will work.

The horses and mares that have been sent out of the State would require to be followed by the National Government, if they are to be attended to at all.

It may be well also for this Bureau to send an inspector to the Lemon ranch at Vernon, Tex., to make sure that the disease is not being spread there and in the vicinity.

If it is judged desirable to investigate the microbian source of the disease, there is abundant opportunity at Clinton and Wapella. By sacrificing one of the victims, the exudates in the testicles, sheath, and other tissues could be received into sterilised tubes and forwarded to Washington.

I would suggest, further, the inoculation of foals, geldings, and barren mares with the products of the diseased mucous membranes, at the generative organs, of the nose, and of the interstitial exudate. This would determine at once the susceptibility of the animal apart from generative excitement, and the virulence or harmlessness of the diseased products of other organs than the generative ones."

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## UNUSUAL GUNSHOT ACCIDENT.

BY J. A. NUNN, F.R.C.V.S., F.R.G.S., PRINCIPAL, VETERINARY SCHOOL, LAHORE.

DURING the recent Chin-Lushai Expedition, I had to order a transport mule to be destroyed for incurable injuries; this was done by a sergeant of the commissariat department, who shot the animal with his revolver. The mule dropped dead, but, to the man's consternation, a native driver who was standing five or six feet behind and three or four to the left side of the animal, fell down also, the bullet having passed through the mule's skull out at the angle of and a little above the left lower jaw, hitting the man in the right thigh. When I came to enquire into the matter, it appeared that the sergeant was holding the revolver in his right hand and the mule by the head-stall with his left, the head being somewhat depressed towards the ground, and the pistol not being held straight, but towards the left, the bullet passed out at an angle to the long axis of the body. I have frequently seen rifle and carbine bullets pass through and out of an animal's skull, but never a pistol shot. The revolver used was the new regulation pattern of 440° calibre.

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## STRINGHALT IN HORSES IN AUSTRALIA.*

BY E. STANLEY, F.R.C.V.S., GOVERNMENT VETERINARY SURGEON, NEW SOUTH WALES.

HAVING been asked to prepare a short paper on this subject, I shall confine my remarks to the consideration of some theories promulgated as to the cause of this affection; and, finally, support my theory of Helminthiasis. First, as to the noxious plant theory, the common British flat weed or cat's-ear, *Hypocheris radica*, often erroneously called dandelion because it has a yellow flower, has the most supporters, who believe it causes Stringhalt; for what reason I cannot understand. I know this weed is good and wholesome food; it covers immense geographical areas in New South Wales and in the other colonies; it has been eaten by thousands of horses year by year, and continues to be eaten where the Stringhalt never existed; again, I have seen many cases of Stringhalt where the weed has never been seen. How is it that the weed theorists during all the years the disease has been about, have not made an extract or decoction of their plant, and so proved their case by producing the disease at will, simply by administering a concentrated dose of the plant; nothing could be more easy or convincing; the late Mr. Graham Mitchell, V.S., tried to do so, but he failed. Some New Zealanders attribute the disease either to the dandelion or to the Cape weed—African marigold (it has a yellow flower with a black centre); if so, why do they not make a decoction of the plant and prove it? These weeds are very common, and are valuable as food. Fungus on plants has been suggested, but has not been demonstrated in any way; as a matter of fact, the symptoms and pathology do not accord with the toxic effects produced by fungi, or indeed any other weeds or plants. The medicinal ingredients of plants are well known to be expelled from the animal body in a very few hours, and when medicines capable of producing toxic effects are repeated time after time disastrous results must follow, and would be seen in the excreting organs; nothing of the kind is found in this disease; on the contrary, affected horses actually recover while living on these weeds all through the various stages of the disease; therefore it appears that the plant theory is untenable and entirely without foundation.

I therefore still maintain that the disease is Helminthiasis, that is, caused by worms. It will be remembered that I reported at some length on this disease in July, 1886; since then I have seen

* Read at the Australasian Stock Conference held at Melbourne in 1889. This so-called "Stringhalt" is a wide-spread and obscure disease of horses in Australia, chiefly marked by spasmodic flexion of the hind limbs.

the same affection at Moama, on the Murray River, in 1887, and again at Moss Vale this year, therefore I am able to confirm my opinion as to the parasitic origin of the disease. It is caused by worms infesting the mucous membrane of the horses' digestive organs, especially the intestinal canal, where, by setting up irritation of the bowels, they disturb the nervous system, thereby affecting the nutrition and action of certain sets of muscles, producing inordinate contraction whenever the animal moves; this I attribute to perverted nervous action, which is possibly aggravated by deterioration of the blood, produced by the ever-increasing myriads of parasites; they are biting, perforating, and bleeding like leeches the highly sensitive mucous membrane during the whole time they are the tenants in possession; they not only deteriorate the blood by altering its constituents, but I believe they also, *by virtue of their excretions and débris, eliminate toxic material,* which being absorbed into the circulation may assist in producing the disastrous effects on the nervous and nutritive systems which are so characteristic of this affection.

That toxic elements are manufactured in the blood by parasitic organisms is well known to scientists who are engaged investigating bacteria and other microbes in their relation to diseases.

In Stringhalt parasitic worms are found in countless numbers, and of several distinct varieties, in the large and small intestines, invading their tunics, making innumerable sores, ulcers, and abscesses, accompanied by the products attending chronic inflammation; thus paralysing peristaltic action, they interrupt the natural nutritive functions of these important digestive organs; they are so overcrowded and voracious that they actually bore right through the bowels, and some are found as wanderers in the muscular walls of the abdomen; they stray about to become finally encysted in various places, and die; their *débris* creates still further trouble.

In passing I wish to note that I consider many of the larger and common worms found frequently in all animals that live on mucous or epithetial cells and food in the stomach and bowels are unimportant in this disease, therefore I exclude them. The arteries are free from strongyli, and I have never seen hæmatozoa in the blood in Stringhalt; neither do I find disease in the cerebro-spinal organs; there is discoloration in the blood-vessels, which is due to impure blood; the cerebro-spinal system is only temporarily deranged.

Having given the basis of my opinion, I am further confirmed by the symptoms, peculiarities, progress, and terminations of this affection.

I am in a position to state that Veterinary Surgeons Archibald

Park, of Tasmania, William Scott, of Sydney, and Frederick William Day, of Randwick, confirmed my views; each of these gentlemen formed their own opinion after investigation and observations extending over three years, during which they have noted the various opinions brought forward in the Press and expressed by horsemen they have questioned.

The opinions of such well-known veterinarians carry much weight, and I feel satisfied that the treatment of the disease will never prove successful unless carried out in detail by those who understand its pathology and deal with it accordingly.

The test of diagnosis is that the line of treatment I advise proves successful, and effects a cure.

The impatient public, who do not understand the structure, use, or importance of the organs attacked, cannot grasp the direful effects produced by chronic disease, therefore fail to understand the great difficulty there is in expelling the parasites without injury to the animal, or the length of time that must elapse before nature can effect repairs; weeks and even months are required for nature to re-establish her sway, before a complete recovery can be proclaimed.

Veterinarians find this disease intractable and difficult to contend with, because the cases are too far advanced before their advice is sought.

The objects of treatment should be to expel the worms, purify the blood, then to assist nature in the restoration of the deranged organs, and avoid contamination.

Hence the line of treatment will consist of purgatives and anthelmintics and tonics, with change of locality, water, and food.

Horse-owners beyond the reach of veterinary skill I advise to trust nature and assist her by simple means, such as change of pasture and water (infested water should be boiled), provide good and wholesome food, and keep out of infected paddocks. Common salt, one ounce daily, alternated with a drachm of sulphate of iron, may be given with advantage; also give two or three times in a month a purgative of spirits of turpentine, three or four ounces, mixed with a pint of olive or other oil.

Further information may be obtained from my report to the New South Wales Government, July, 1886.

## RABIES AND MUZZLING.

BY THOS. B. GOODALL, M.R.C.V.S., CHRISTCHURCH.

WHEN we, living in this locality, can hear distinctly the rumbling of the "ground swell" on the shingle of our western shore, we are fairly certain that there is a storm brewing, and that there is rough weather not far away. So those who accustom themselves to note the "signs of the times," may, from early indications, make a fairly sure forecast of what is being contemplated in legislative quarters, on this question, in the near future.

We may fairly assume that the object of the Central Veterinary Medical Association, in sending certain resolutions to other associations for their consideration, is, if the result has any approach to an unanimous expression of opinion in favour of their motion, to present this to the Board of Agriculture, as the strongest procurable argument in favour of the compulsory muzzling of all dogs for some considerable time, and promising, as a result, that in this country *Rabies shall be no more.*

My aim in asking for space in the JOURNAL for these notes at the present time, is that members of the profession may be brought to give their serious consideration to the question from all points of view, before committing us, as a body, to tender such advice to our Legislature as that suggested above.

On a former occasion I was allowed the privilege of using the JOURNAL as a medium for giving expression to my thoughts and observations, when the question of Hereditary Transmission was to the front; then my counsel was tendered after the expression of opinion by the profession, but on this occasion I hope these notes may be perused before that step is taken.

At the recent meeting of the R.C.V.M.A., at Oxford, the agenda paper was so full, and there was so much to be done in the limited time at our disposal, that these resolutions were put and carried without discussion. I then voted against them, so that I might be free to bring my views forward, by indulgence, through the agency of the JOURNAL.

First Resolution:—"That this meeting, whilst recognising the possibility of animals other than the dog becoming the media of spreading Rabies, is of opinion that in a large majority of cases, if not the whole, the development of this malady is due to the dog."

Do we not here, at the outset, *assume* more than we can prove? Nay, do not those recorded cases of spontaneous outbreaks in the dog clearly point that we must look to some other source for the primal dissemination of the virus of the malady?

To me it is incredible that in these days of enlightenment any one conversant with the simplest rudiments of biology can be

found allowing himself to be lulled with the notion of the possibility of the spontaneous origin of any living organism (and such must the microbe of Rabies be). And in these reported cases of spontaneous outbreaks, we may be certain that the virus has been transmitted in some manner, if not by the dog, then by other means.

This brings us face to face with a problem of most profound interest and importance, we at present know so little of the life-history of this and other organisms which, by their presence in the bodies of the higher forms of life, induce the state we term "disease."

For the sake of simplicity, let us look upon all diseases caused by microbes as parasitic, and then, bearing in mind the many metamorphoses the larger and more easily demonstrable parasites undergo, and also looking upon the subtle and, until comparatively recently, unexplainable manner in which these found an entry into the economy of their hosts, inquire if it is not probable that in the near future our scientists will be able also to account for changes in the life-history of these microbes? And may not this explanation clear up what we now deem inexplicable? For my own part, I feel sure that the constantly new revelations of the microscope will soon show us that our present mode of combating contagious diseases, with a view to their eradication, is futile, and that we have yet to learn that it is as impossible to "stamp out" a disease, the existence of which is due to a microbe which is indigenous, as it would be to stamp out the *Estridæ*, *Tabanidæ*, or other injurious insects, the flies from our houses, or the nettles and thistles from our fields.

Until quite recently, and even now with some fairly enlightened people, the occasional or periodic appearance of some insects in larger numbers was, and is, looked upon as a phenomenon, as though these creatures sprang into life spontaneously, being *generated* by some atmospheric influence. Only this spring I was talking to a man well informed on general subjects, about the oak trees being entirely denuded of their foliage; he said, quite seriously, that it was due to a "blight" brought by the prevalence of easterly winds. I pointed out to him the caterpillars of the *Tortrix Viridana* or oak-leaf roller moth, and showed him that they were the cause of the mischief; his reply was that these caused the blight, and were bred by the "east wind"!!

Those who know the simple life-history of these insects must feel inclined to smile at such ignorance, and some may say, what has this to do with muzzling dogs?

I have quoted the incident to show how difficult it is to break through old superstitions and ideas. To my mind, those scientists who hold the theory of the possibility of the spontaneous appear-

ance of Rabies, or of any contagious disease, have not a whit better argument than the man who believes that the east wind generated the caterpillars.

But if the microbe of Rabies cannot be generated spontaneously, we must look to other sources than the dog for the development of the malady, if we would give a reasonable explanation for its appearance in that animal when it could not possibly have been infected from one of its own kind.

The fox, for instance, has been known to be rabid, and the wolf frequently, and in Mr. Fleming's work, "Rabies and Hydrophobia," these cases are quoted as an argument in favour of the theory of spontaneity, whereas they tend emphatically to prove that in the life-history of the microbe its active form must be developed in feral animals, and from them transmitted to the dog.

When we have undoubted cases on record of the fox having been known to be rabid, I would ask, taking into account the habits of the fox and the dog, is it as reasonable to assume that these animals must have received the virus through the bite of a dog, as that they were first affected, and by them the infection has been transmitted to the dog?

This consideration is most important in forming our conclusion whether muzzling all dogs for any length of time would entirely eradicate Rabies from our shores; for if the development of the malady may be traced to other animals than the dog, muzzling the dog, which would only be an intermediary bearer, is absurd.

If we know that the fox, wolf, jackal, and hyæna are hosts for the development of the virus, may we not also assume, with tolerable certainty, that the ferret, pole-cat, stoat, and weasel are almost certain media for its transmission, they being all true carnivora? and though the difficulty of detecting and recording a case in these smaller fauna is necessarily great, still, if we as a profession were to set our minds diligently to search out the whole truth, by devoting some of our spare moments to a study of the habits and diseases of these animals, we might clear up some knotty, and at present inexplicable points in connection with this disease.

Besides the carnivora, all those other animals that use their teeth in self-defence might be media for the development or transmission of the malady, and of these the rat would take precedence; then the hedge-hog, mole, shrew, and possibly the common house-mouse! I must go even further, as we know that the despised earth-worm is the medium in bringing the Bacillus of Anthrax and the germs of putrefaction to the surface of the earth, that they may again perform their allotted task in the economy of nature, the possible hosts for the transmission or metamorphoses of the microbes inducing disease might be multiplied *ad infinitum*.

Looking impartially, then, at these probabilities, how can we, as a profession, give it as our opinion "that in a large majority of cases, if not the whole, the development of this malady is due to the dog"?

Resolution II.—"That from abundant evidence gathered in our profession, this meeting finds that effective muzzling is the most reliable method of stamping out the disease."

We must take exception to the wording of this resolution, because it is inconceivable where the abundant evidence could have been obtained, when it is a notorious fact that as yet there has never been any general effective muzzling. The owners of dogs have been compelled to place muzzles on their dogs when on the public road or in a public place, but I am sure we should be, if anything, under-rating the estimate if we were to affirm that at least two-thirds of the muzzled dogs could bite as easily with as without the muzzle; and in the face of this we pass a resolution that we have abundant evidence that this is the most reliable method of stamping out the disease.

The evidence I could produce from my own experience would tend to prove that when Rabies made its appearance in a district, it was readily overcome without the necessity for muzzling dogs, the owners of bitten dogs complying only too readily with having their animals destroyed, and the disease not again heard of for years.

Effective muzzling would be an impossibility, because to carry it out every animal in which the virus might find a habitat should be muzzled, so that it could not use its teeth for the purpose of inflicting a wound on another animal; and this, not only in a public place, but at all times and in all places. To be effective it must also be continuous; that is, all our carnivora should be fitted with effective muzzles as soon as they can begin to use their teeth, and they should never be taken off again as long as the creature has the power to inflict a wound with its teeth.

If this is not practicable, then muzzling with a view to stamping out Rabies can never be called effective.

If we leave out all the other carnivora and confine the argument to the case of the dog, even then only continuous muzzling could be termed effective, because, from whatever source the dog might have received the virus, it is more than probable that a rabid dog would escape from its home and owner before the nature of its illness was known—or there would be great risk to the person applying the muzzle to the affected dog.

One of the symptoms is a disregard of the master's voice, and then the irresistible restlessness; if the dog were not muzzled before the advent of these symptoms, no power could restrain him from evading its application and wandering off to inflict his bite

on all he meets! Such a dog might have been most carefully muzzled for weeks when in a public place, but the restraint could not be deemed effective if it were not also continuous.

Resolution III.—"It is advisable that all imported dogs be subjected to a quarantine of six months."

It might prove beneficial to us if we were to prevent the importation of foreign dogs, and if this resolution were made law its tendency would be to bring this about. We might say it would only inconvenience a few people; but we must remember with what object we are framing this advice—to eradicate Rabies from our shores and to prevent its reintroduction.

If quarantine is to be effective, not dogs only, but all carnivorous animals, and most probably the rat, must be included in the measure.

But are we justified in advising quarantine as a preventive measure, when, knowing as we do that Rabies has been in the country from the earliest times, it is either indigenous, or has been so long with us as to have become acclimatised?

Can we imagine such a ludicrous sight as our Board of Admiralty placing a cordon of torpedo-boats, submarine mines, battle ships, etc., etc., to prevent the landing of an enemy when he was already in the country and committing his depredations? It would be of little use to set a watch to prevent an enemy sowing the "tares among the corn" if they had been mixed with the seeds when the filed was sown!

These similes are no more ridiculous than would be the sight to an onlooker of a vigilant watch being set at every seaport to prevent the virus of a disease entering our domains when it has been there from time immemorial, and is, as it were, part of ourselves.

The picture of the representatives of a great profession such as ours seriously tendering such advice to a Government would be bordering on the ridiculous.

Resolution IV.—"That partial or local muzzling of dogs for the prevention or eradication of Rabies is inadequate."

If the hypothesis is granted that to the dog is mainly due the development of the virus of Rabies, and muzzling is to be made compulsory, then every dog in the country, sporting or non-sporting, foxhound or poodle, should be made to wear the muzzle *continuously*. It is a ridiculous farce that one man cannot take a well broken dog out with him for a walk unless it has a muzzle on, when a pack of foxhounds are allowed to scour the country or be taken for exercise in a busy public road without any safeguard.

Again, where the limits of the districts of different authorities meet, on one side of a road the dogs must be muzzled, while on the other there are no restrictions.

This fourth resolution, when passed, would lead to our advising that muzzling be *general* for a stated time. In large towns this would not be of much importance, but think for a moment what the consequences would be in the country! We must bear in mind my former argument that muzzling to be effective must be *continuous*. Then hunting would be impracticable for a season. Independently of the healthful manliness of this "sport of kings and image of war with only twenty-five per cent. of its dangers," and the amusement and occupation it affords to thousands, the loss to all classes, from the prince to the peasant, and our agricultural population in particular, would be enormous if it were discontinued for only one season.

Dogs, again, could not be used for the destruction of vermin, and we must all have heard how the country has been overrun with rats during the last year. Give these pests one season's grace, and the loss from their ravages would be terrific.

Then there are the scores of ways in which, from long usage, the services of the dog have become indispensable to man; and putting all sentimentality on one side, it is doubtful whether we could ensure to the public such efficient results as would justify us in asking them to make the muzzling of dogs a permanent law.

In this democratic age legislation cannot be enforced against public opinion, and we are not justified in assuming that this is ripe on this question, neither are we in a position to appeal to the public with any confidence, because we cannot promise them any permanent benefits, for if every dog in the country was *effectively* and continuously muzzled, the germs of the virus would still be with us, because they are indigenous or acclimatised, and would be ready for attack again at any moment; nay, if every dog in the country were exterminated, there would still be the feral animals to deal with; so that in speaking to this last resolution, if we advise general and continuous muzzling, every possible source capable of retaining the virus should be safeguarded, which is impracticable.

I am sure it must be the earnest desire of every one of us to do all we can, and to suggest any remedy that may tend to check this most fearful malady; but do not let us lose our heads and give unsound advice.

We must admit that the dog, by reason of his intimate relationship with man, is the animal, *par excellence*, that is most likely to transmit the virus to man, from whatever source he may have become affected; and our primary object in suggesting legislative measures for the suppression of the disease, is the protection of mankind from one of the most fearful and fatal maladies known.

The extremely rare occurrence of the disease in man would

scarcely warrant our advising the extermination of the dog, and we may be perfectly sure that were such advice given it would not be acted upon, and yet this is the only safeguard for man.

It is pointed out that where the muzzling order is in force the disease is less prevalent; but the success of the restrictive legislation is due, more than anything else, to the destruction of stray and ownerless dogs, and this law is brought into force simultaneously with the muzzling order.

I have shown that under the present regulations a rabid dog will probably evade the application of the muzzle and escape, and hence the law is futile; we have had a proof of this in this county last week. The muzzling order has been in force here since April, and yet there is a fresh outbreak reported.

Is there, then, nothing that we can suggest to meet the coming disease? I say, Yes! and without causing any of the inconvenience and annoyance of the spasmodic and piecemeal legislation of the past few years.

Let something like the following be made a *permanent* law:—

A *registered* number should be supplied to the owner of a dog with the granting of every licence; this "number," with a registered Government mark, should be worn in the form of a medal, by every dog in the country, sporting or non-sporting.

To prevent disputes, the person taking out the licence should be held responsible for that dog for the year. This would rid us of stray and ownerless dogs, and would make people more careful of allowing a savage dog his freedom; because if a dog had on his "number," the responsible person for the year could be easily identified, and if it was without its number, the police should be authorised to destroy the animal. The registered numbers should be issued by the central authority to the different excise offices, so that no two dogs in the country could have the same indication.

Such a law as this would not interfere in any way with the usefulness of the dog, and if it were carried strictly into force, the public would be as safe as under the muzzling regulations, and the object sought by the Legislature would be as likely to be attained.

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## RABIES IN THE UNITED STATES OF AMERICA.

BY J. A. MC LAUGHLIN, D.V.S., PROVIDENCE, U.S.A.

THE discussion by Mr. Woodroffe Hill and other veterinarians on Rabies, has interested me very much. The fact is, I have for years been interested in the subject, or rather in the writings and discussions appertaining thereto; for it would hardly be proper to say I have been interested in the disease itself, as I come under

that head which Mr. Hill and myself deplores. I am one of those veterinarians who have never seen a case of Rabies, and I have met many veterinarians who have the same meagre knowledge on the subject as myself.

All around us in America are Hydrophobia scares; men have been bitten and died; dogs have bitten other dogs, and as a sequel, were killed. And one horse, at least, in my own practice has gone "crazy," after being bitten by a dog so mad that, after running around the place as wild as a bull, committed suicide in attempting to swallow a chain.

I would like to put a case of "dumb rabies" on record.

The lower jaw was paralysed; saliva running freely from the mouth, with a decided tendency to bite, though unable to. I was warned not to touch the animal on this account—that of attempting to bite; she attempted with such good will to bite her owner's hand, that the pressure against it with her upper teeth made it black and blue; and when I, seeing she could not bite, paid no attention to her attempts, she succeeded in drawing blood by the same means. The bitch was very anxious to both eat and drink, making pitiable, but futile attempts to do so.

I, owing to the rarity of Rabies in my canine practice, never thought of diagnosing Rabies, and inquired what she had eaten, and if she had been poisoned?

I was told no! to the latter inquiry; and to the former, that a mouse was the most indigestible thing she had eaten.

The next day the eyes became affected—the dog could see—and it seemed to be the cornea alone that was involved. The dog was also lame in one fore limb, which one I forget; this last symptom was no doubt present on the preceding day, though I failed to notice it.

The day following, at the owner's request, I killed the animal by chloroform, and the *post-mortem* examination proved it to be a case of *arsenical poisoning*. Dr. Heaton, of Olneyville, proved this.

As I have said, I was not thinking much of Rabies at the time, but I did look at Mr. Hill's work, and found that paralysis of the lower jaw is almost positive evidence of *dumb rabies*. Now what is more common than arsenical poisoning among our unfortunate canine friends? Arsenic is a most irregularly acting poison, and I believe it is possible for the same drug to produce other cases of "dumb rabies."

What the evidence of veterinary surgeons is on the subject seems to be a difficult matter to determine. There is a great deal, aye, a vast pile of erudition on "germs," bacilli, etc., but on a practical diagnosis, I must conclude from most of the evidence I have heard, from even professional sources, that any cerebral

disturbance—except fits—is quite sufficient to base the diagnosis of "Rabies." If these are symptoms which indicate that the dog's brain is affected, it seems that it must be the Hydrophobia germ that has found an entrance to the poor canine's constitution; as his grey matter cannot be affected by any other influence, and accordingly, he is a *mad dog*.

I am not speaking now of the daily newspaper reports, which are wearing the life out of the public, and have become so very plentiful since the establishment of a Pasteur institute in New York City, but of that which emanates from professional sources.

A few days ago I was called to see a horse that was said to be "crazy." The animal certainly had some brain trouble. He would stand in a box-stall and kick with both front and hind limbs, and cry out as though frightened, besides apparently suffering from delusions. He would answer the word of command and become quiet, when the young man who owned him, or, at least, the owner's son, would stand by his head and speak to him; but just as soon as he left, he would exhibit his wild symptoms again. He continued in this way for some days, but had been worked all the day before I was called in to see him, when the driver, becoming afraid, refused to drive him any more. His work was heavy pulling, and he was one of a pair, but they had to hitch him up single; he would sometimes lie down in the shafts, then get up, and with head down, regardless of whip or rein, trot with his load long distances, pulling his mate along with him. I was informed he had been bitten by the dog I have mentioned, and which, in a fit, had accomplished the peculiar and interesting feat of committing suicide by swallowing, or attempting to swallow, a chain.

One symptom I forgot to mention—the horse would bite whatever he could get hold of, and had badly bitten another horse.

Inquiry proved that he had shown peculiar symptoms *before* the dog bit him, and that his former driver had been in the habit of patting him on the head with a large shovel. From what I can make out, it would seem the horse was not "all there" when he was bought.

These are as good cases of Rabies as I am in the habit of hearing of. I am perfectly willing to believe that there is such a disease as Rabies; I do believe there is; but as I am daily treating dogs, and have never yet seen a case, I certainly believe it is a very rare disease, and from what I have seen of the extreme nervous condition in which it puts the general public, I consider it a good thing to assuage the fears of the people, instead of keeping those fears alive; I believe in partly undoing the vast amount of harm already done.

# Editorial.

## THE SUPPRESSION OF CONTAGIOUS PLEURO-PNEUMONIA.

In carrying into effect the new Act for the suppression of the Contagious Pleuro-pneumonia of cattle (which we publish elsewhere), the Government has at last made a serious attempt to get rid of this subtle and destructive disease. The measures now to be brought into operation are those which we have insisted upon for years, as alone certain to be attended with beneficial results if rigidly enforced. The disjointed, and often half-hearted or apathetic efforts of local authorities were useless, or worse than useless, and the system of local compensation was eminently unsatisfactory; in fact, the disease was simply being trifled with at a great cost of temper and money, instead of being dealt with in a resolute and enlightened manner. The malady is not at all so easily subdued as Foot-and-Mouth disease or the Cattle Plague. These manifest themselves soon after infection, and their presence is revealed by well-marked and unmistakable symptoms, obvious to the most casual observer. Not so the disease in question, which may be present in an animal, with all its infectious potency, for a very long time without challenging notice; and owing to this occult feature in its pathology, it becomes extended in such an obscure manner that the sources of contagion may altogether elude the strictest and most patient investigation. It is a disorder that lends itself to the unscrupulous or dishonest cattle-owner or dealer, who only too often is successful in disposing of infected stock without risk of detection, or even suspicion. In view of this fact, it might be affirmed that the new Act goes scarcely far enough, and might be supplemented by registration and marking of all cattle in an infected region. However, the need for this step may be rendered more apparent as time passes. In the meantime, we must complain of the way the veterinary profession is treated by the Board of Agriculture in reference to the working of this Act—indeed, it receives but scant recognition at all times, and it is more frequently ignored than acknowledged. We know not who is to blame for this, but it is a circumstance which is deeply to be regretted when the extinction of contagious animal diseases is considered, as upon the intelligent and zealous manner in which local veterinary surgeons perform their allotted share of the work of suppression must altogether depend the success of the measures in effecting their object. We had occasion last month to comment on the composition of the Tuberculosis Commission and the absence of the veterinary element in it. In this new Act the local inspectors are placed in a somewhat degrading position with regard to the part they have to play as competent professional men, and as evidence of the small estimate which the Board places upon the

capabilities of members of our profession, a number of travelling inspectors have been appointed, not one of whom is a veterinary surgeon, or for that matter knows anything of veterinary sanitary matters, they being chiefly retired army and navy officers, and other odds and ends picked up it would be hard to say where. And yet veterinary surgeons will have to work under these untutored amateurs, who have the power of fixing infected boundaries, investigating the extent of infection, receiving orders as to slaughtering cattle, and other matters which skilled men are alone capable of attending to.

In reply to a representative body of local authorities who waited upon the President of the Board recently, he said he was afraid that they (who ?) could not require that the travelling inspectors should be qualified veterinary surgeons, but the inspectors would consult veterinary surgeons at all times when they considered it necessary. Since then the appointments have been published, and, as has been mentioned, there is not a veterinary surgeon in the list. We are confident that no other profession would accept such insulting treatment without making its displeasure felt in a very effective manner, and it is certain that the medical profession would strikingly resent it. What have our members done that they should be so repeatedly and so studiously made to feel what an unworthy class they are? How can a struggling body, such as ours is, rise to an influential or self-respecting position when the Government—or rather its advisers—do not consider us worthy of performing functions which are unhesitatingly conferred upon aliens or untaught amateurs? The reminders of our incompetency or lack of professional spirit must engender feelings of a very unpleasant nature in the breasts of those who know how ill deserved they are, and how much the opposite course of treatment would effect in increasing that *esprit de corps* which is so essential in promoting progress—social and scientific.

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## THE HISTOLOGY OF THE SKIN OF THE ELEPHANT.*

BY FRED SMITH, M.R.C.V.S., F.I.C., PROFESSOR, ARMY VETERINARY SCHOOL, ALDERSHOT.

In dealing with the minute anatomy of the skin of the elephant, I have found it necessary to divide it into certain parts for clearness of description. The skin of the trunk, ears, body, and limbs will therefore be separately described, for, as we shall see, they in some important respects differ widely from each other.

*Trunk.*—The skin of this region will be divided into that clothing the inferior or touch extremity of the trunk, and the body or main portion of that organ. It is not to be wondered at that the skin of this part should be of varying character, when we remember the remarkable prehensile and tactile power possessed by the lower extremity of the trunk.

The corium of the touch extremity is composed of white fibrous and yellow elastic tissue interlacing to form networks, and between which are found a varying quantity of muscular tissue of the striped variety. The meshes formed by the fibrous and elastic tissues are larger at the deeper than at the superficial portions of the skin, for here they run closer together to form the

* From the *Journal of Anatomy and Physiology*, vol. xxiv.

papillary portion of the corium. The corium rests upon the muscular tissue of the trunk, and fibres form this part pass outwards through the corium and reach to nearly the most superficial parts of the layer. The mean thickness of the corium is $\frac{1}{8}$ of an inch. The papillæ formed are remarkable for their extreme length—they are long finger-like processes, lying close together, and passing directly outwards to reach the superficial layers of the epidermis; the fibrous tissue of which they are composed takes rather a wavy direction, and the papilla itself ends in an obtuse point within a short distance of the surface of the skin. As a rule, the papillæ are single, but sometimes they are multiple, viz., two or three arising from one base. The length of these papillæ will be found to be from $\frac{1}{50}$ to $\frac{1}{30}$ of an inch, and their width at the base from $\frac{1}{100}$ to $\frac{1}{200}$ of an inch. Blood-vessels, nerves, and even muscular fibre may be seen running up quite close to the base of the papillæ, but I have never distinctly traced any of these into the substance of this part, though, of course, the papillæ are composed largely of nervous material.* Their undoubted use is to supply that delicate and perfect sense of touch possessed by this animal, and to this purpose the papillæ are in connection with certain nerve-endings which are found scattered throughout the corium of the touch extremity.

These nerve-endings are irregularly oval in outline, and are composed of concentric layers like an onion, the central portion or nucleus being solid and granular. They are of great size, varying from $\frac{1}{60}$ to $\frac{1}{80}$ of an inch in length, and $\frac{1}{110}$ to $\frac{1}{100}$ in width; the central portion or nucleus being $\frac{1}{600}$ to $\frac{1}{700}$ of an inch in diameter. These nerve-endings are scattered throughout the superficial portions of the corium, generally beneath the papillæ, and are either single or exist in small groups of two's and three's. I have only once been able to trace a blood-vessel into them, and it has not been possible to more clearly define their arrangement. This is owing to the tissue being stale. The trunk is the only part of the elephant's skin where we find special nerve-endings. I have not been able to clearly define the area over which they extend, but I am certain that they exist in larger numbers on the touch extremity than elsewhere.

The blood-vessels in the corium are numerous and large, but have no special distribution.

In no part of the skin of the elephant can sebaceous or sudoriferous glands be found, and the trunk is no exception to this rule.

The epidermis covering the touch extremity of the trunk is enormously thick, and arranged, as in other animals, in layers of cells fitted into each other with the most perfect regularity. These cells take, of course, the general contour of the skin at this part. In bold masses they sweep up the side of the long papillæ, forming a large convex cap for the summit, and immediately descend on the opposite side of the prolongation. The deeper cells contain a large amount of pigment. The epidermis, which is found to cap the papillary process of the corium, is sometimes arranged in rather a singular manner, I cannot better describe it than by saying that at the top of the papilla is a space containing a number of cells; in my notes I have spoken of it as a nest of cells, and perhaps this is the best term to use for it; these nests grow outwards, so that some are found in the middle of the epidermis and some on its surface. Surrounding the nests are the epidermal cells, many of them being spindle-shaped. The cells occupying the nests are generally round or oval, and somewhat resemble cartilage cells, the nest itself being formed either of a fibrous-looking material, or by means of the spindle-cells previously alluded to. Some large spindle-shaped or oval cells may also be found in groups (not arranged distinctly in nests) scattered through the

* The reason I have not been able to absolutely demonstrate the nerves by staining is on account of working with material six years old.

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substance of the epidermis, which in some cases are strikingly like cartilage cells, and possess a large oval or round nucleus. This arrangement of cell "nests" exists in other parts of the body, particularly in the skin above the nail, and in the nail itself.

The general arrangement of the pigment in the epidermis is to cause it to present under a low power an appearance of black streaks extending from the corium to the surface of the skin, separated by means of cells which are comparatively free from pigment.

The thickness of the epidermis is from $\frac{1}{8}$ to $\frac{3}{16}$ of an inch.

*In the upper part of the trunk* the long papillæ have disappeared, and their place is taken by what I will have to describe as compound papillæ, viz, there is a large primary papilla, and from this several smaller secondary ones grow. Muscular tissue is still largely present in the part, and the same special nerve-endings are to be found; hairs, however, are to be seen here, which are almost absent from the touch extremity of the organ.

*The skin of the ear* is remarkable for its extreme vascularity, and the comparative thinness of the corium and epidermis. The papillary layer of the corium consists of primary and secondary papillæ, the primary being somewhat cone-shaped, and the secondary varying in number from two to nine. The rete Malpighii is thickest in the centre of the primary papillæ, and diminishes to a mere streak at the extremities of it. Hairs are found in this skin.

*The skin of the body.*—The corium is of considerable thickness, about $\frac{1}{10}$ of an inch; it is composed wholly of white fibrous and little yellow elastic tissue, interlacing in all directions, and forming large spaces below and small ones above. The papillæ are of the compound order, viz., a large primary papilla, which is an archway-like projection $\frac{1}{16}$ of an inch at its base, and projecting upwards for the same distance into the epidermis, from the upper surface of this archway the secondary papillæ are given off, being from eleven to fifteen in number, and having a length of $\frac{1}{200}$ to $\frac{1}{250}$ of an inch, and a base of from $\frac{1}{250}$ to $\frac{1}{400}$ of an inch.

The nerves of the corium are numerous, giving off loops to the primary papillæ, which in turn give off branches to the secondary papillæ; occasionally a main trunk enters a primary papilla, and breaks up into secondary branches. There is no regularity in their distribution, and I do not think that every secondary papilla has a nerve.

There is not a trace of glandular structure in this skin.

The epidermis of the skin of the body is arranged much as elsewhere, the deepest cells being very large, nucleated, and containing much pigment. Again, we notice the extreme regularity of the cells, both large and small, comprising this layer. The general direction of the cells corresponds to the outline of the papillæ; at the depression where two papillæ meet the amount of pigment is very great, and as this is continued outwards through the layer, it gives the part a laminated appearance. The epidermis is about the $\frac{1}{50}$ of an inch in thickness.

*The skin of the limbs* was examined particularly at the margin of the nails. The corium is from $\frac{3}{8}$ to $\frac{9}{16}$ of an inch in thickness, and is remarkably vascular; its papillæ are both compound and single, the latter predominating close to the nail, and being there in shape much like those found on the touch extremity of the trunk, with the exception that they all appear to be vascular papillæ, and large convoluted vessels run into them quite close to the termination of the epidermis. The convoluted vessels strikingly reminded me of what a sweat gland would be if elongated; in fact, I thought at first these must be glands, but I feel convinced that they are blood-vessels. They are the $\frac{1}{1000}$ of an inch in diameter, and the plexus is $\frac{1}{12}$ of an inch in length.

I could not determine any special nerve-endings at this part. The

epidermis on the skin above the nails is very thick, and resembles that found on the touch extremity of the trunk; as we get nearer to the nail the appearance is more like horn; in fact, it is impossible under the microscope to say exactly where the skin ends and the horn begins. The large vascular papillæ, with the convoluted vessels mentioned above, run only into the epidermis a little above the nail, but not into the wall of the nail itself. The papillæ from the corium immediately above the nail extend into the epidermis and nail wall for a distance of from $\frac{1}{8}$ to $\frac{1}{13}$ of an inch. I observed in the epidermis of this part the same cell collection, or cell "nests," found on the touch extremity of the trunk.

The *hairs* in the skin of the elephant may broadly be divided into two classes—hairs and bristles. The former are much finer than the latter, which are coarse, powerful, and of great length. The microscopical differences are also very great; the hairs are mainly solid in their structure, whereas the bristles are perforated for a considerable length by foramina. I am not prepared to say whether a hair ever grows into a bristle, but I am confident that in the animal's skin we find these two distinct classes. Before describing the appearance of a hair, it will be necessary to look at the sacs in which it is enclosed.

On making a section of the skin of the trunk, we are struck by the appearance of certain greyish, pear-shaped bodies, of such remarkable size that they are readily seen by the naked eye; in length they are $\frac{3}{4}$ of an inch, and in their greatest diameter $\frac{3}{16}$ of an inch. These bodies are the hair follicles, or perhaps more correctly the bristle follicles, for the hairs are contained in a smaller sac, which never reaches such a size as that of the bristles. The sheath of the bristle follicle is greyish in colour and very tough, and may microscopically be readily separated into an external and internal sheath. The internal sheath is smaller than the external; in structure it is cellular and fibrous, the two appearing to alternate; in a longitudinal section the one layer is seen above the other; in transverse section the fibrous layer is seen to throw out projections towards the external root-sheath, and to be arranged around it in a somewhat radiating manner; between the limbs thus thrown out we see the cellular structure, which is almost exactly like cartilage. Externally this follicular sheath is in contact with the external sheath of the follicle. The two are intimately blended, but by exercising a little pressure on the section, it will be seen that they fit into one another by means of the processes from the internal follicular sheath.

The papilla of the hair or bristle rests on the internal sheath of the follicle; this sheath is here comparatively narrow, and its structure is principally fibrous, containing many connective-tissue corpuscles. The internal sheath of the hair-follicle stains quite differently with picro-carmine from the external sheath, taking on a much lighter carmine tint. The vascularity of the internal sheath of the follicle is also remarkable, and it is highly endowed with nerves.

The external sheath of the follicle is much more fibrous and larger than the internal sheath, and consists of bundles of fibres interlacing in all directions. It stains of a deep red with picro-carmine. Though with the naked eye it is easy to determine the sharp outline of this sheath from the surrounding corium, yet under the microscope it is rather difficult to say where one ends or the other begins.

Surrounding the hair or bristle we have the internal root-sheath, and outside this the external root-sheath, which in turn lies in contact with the internal sheath of the follicle.

The internal root-sheath is a vitreous layer enveloping the shaft of the hair; in small hairs it is the $\frac{1}{500}$ of an inch in diameter, whilst in the bristle it is from $\frac{1}{300}$ to $\frac{1}{200}$ of an inch in diameter. In transverse sections it is seen to

be composed of an imbricated layer of glassy cells, those next the hair being the smallest, whilst those outside them are large and irregular in outline, and lie over each other. In longitudinal sections the cells appear to take a more definite direction, but are just as structureless and glassy in appearance. This sheath passes under the hair, but terminates at the papilla; it is quite impossible to stain it.

The external root-sheath does not pass down to the bottom of the hair; it is much narrower below than above, where it enlarges considerably. In structure it is cellular, the cells being large, oval, and nucleated. Those cells next to the vitreous layer are arranged diagonally to the hair, whilst the cells nearest to the internal sheath of the follicle are horizontal. This layer stains orange-red with picro-carmine, presenting a marked contrast to the vitreous layer. I have often observed a dark irregularly broken line separating the internal from the external root-sheath. The outer zone of the external root-sheath is always more opaque than any other part. The diameter of the external root-sheath varies from $\frac{1}{500}$ to $\frac{1}{300}$ of an inch.

The papilla of the hair or bristle is formed by the internal sheath of the follicle; it is largely cellular in structure, and I believe that prolongations from it pass up into the foramina found in the bristles, but on this point I am not positive.

The hairs and bristles are black in colour; both may be found on the body, but I think the bristles are more plentiful on the trunk and tail than elsewhere. I recognise the bristles by their being much coarser than the hairs, and by possessing a much larger sac; this latter reaches its full development in the trunk.

Both hairs and bristles penetrate the skin obliquely, and run into it for a distance varying between $\frac{1}{4}$ to $\frac{1}{2}$ an inch; they gradually decrease in thickness as they pass outwards; the bristles are 3 or 4 inches long, the hairs about half this length.* The bristles on the tail (which I have not had an opportunity of examining microscopically) are of immense thickness and length.

If a longitudinal section of a bristle be made, and that portion examined which is outside the skin, a number of dark lines of pigment may be seen running the length of the bristle, separated by a substance much lighter in colour. These streaks indicate the remains of the canals or foramina. If that portion of the bristle which is within the skin be examined in longitudinal sections, the canals are there seen not as perfectly clear spaces, but much lighter in colour than the parts on either side of them. If we take a bristle and make transverse sections of it from the root upwards, it will be found that the foramina do not run the length of the bristle, but cease about on a level with the epidermis. The foramina are twenty or thirty in number, and oval or round in outline. Surrounding these openings we have the cells of the hair arranged in a concentric manner, and the appearance presented under a high power is strikingly like bone, only that the laminæ formed by the hair cells are very small. The cells forming the hair or bristle substance are of the pavement variety, each cell containing a large black nucleus; around the foramina the cells become flattened. The canals in the hair are not empty, but contain highly refractile cells like the internal root-sheath; on section many of these fall out and thus leave the part perfectly clear.

The hairs are solid for the greater part of their length, and many of them may be solid throughout, but there can be no doubt that I have detected foramina at the deepest part of many hairs just above the papillæ. They do not run up the shaft for any great distance, nor have I seen them in all specimens examined, but there can be no doubt that many of the hairs on all parts of the body contain foramina filled with vitreous-looking material.

* I am here only referring to the specimens in my possession; it is most likely that the length of these appendages varies considerably according to climate and season.

The diameter of the bristles is about the $\frac{1}{30}$ to the $\frac{1}{40}$ of an inch, the measurement being made close to the papilla; as they pass higher up in the skin they get narrower. The foramina are from $\frac{1}{100}$ to $\frac{1}{600}$ of an inch in diameter. The hairs are from $\frac{1}{100}$ to $\frac{1}{120}$ of an inch in diameter; some on the body are double this size.

*The nails of the elephant.*—In describing these, I am compelled to use the nomenclature adopted in describing the hoof of the horse. Thus the nail has a wall and a sole; the wall is crescentic in shape above and at this part is very thin; it gradually increases in thickness to about $\frac{3}{8}$ of an inch, and maintains this all the way down. On the internal surface of the wall are a number of horny laminæ or leaves, which fit in between a corresponding number of sensitive laminæ, which are found on the outside of the bone of the nail. The horny laminæ, unlike those of the horse, extend for a short distance on to the horny sole. The horny laminæ do not reach within an inch of the top of the wall, but where they exist are as well developed as in the horse. The sole of the nail is very thick—about $1\frac{3}{4}$ inch. On the upper part of the sole, next to the sensitive foot, are a large number of foramina of great size to accommodate long villi growing from the sensitive sole. The width of the nail, from corner to corner, is 5 inches, and its height at the centre $2\frac{1}{2}$ inches.

A transverse section of the wall, including the laminæ, when viewed microscopically, is found to differ, depending upon whether the section is from the centre or sides of the nail, or whether we are studying the wall or the leaves; the latter are cone-shaped, and possess certain lateral irregularities corresponding to the lateral laminæ of the horse. The laminæ terminate either in an obtuse point or in two or more projections. In some places it may be seen that the laminæ are bridged across, and thus a canal or foramen formed. This is particularly the case with the corners of the nail rather than its central portion. Here we find the laminæ more obliquely placed, and lie closer together, and they are bridged across or connected by a tissue which is undoubtedly horn, and yet in some of its characteristics is wholly unlike any other horn with which I am acquainted. The bridging across of the laminæ leads to the formation of many foramina, and I am satisfied that I have found that those next to the sensitive tissue often contain a blood-vessel.

The union of the horny laminæ with the wall of the nail is peculiar. The laminæ appear to pass into the wall and then become fibrous in appearance, the fibres being remarkably wavy, and curving up and down both to the right and left unite with similar fibres passing from the neighbouring laminæ. So far as the centre of the wall is concerned we observe nothing else of importance in connection with this structure, but at the lateral edges of the nail we find that the fibres of the horny laminæ enclose long strips of tissue, penetrated by some large canals, and that around these canals we have fibres disposed in a circular manner, and an appearance of lacunæ produced by the pigment existing in the horn cells. The contents of the canals are cellular, though one, as I noted above, often contains a blood-vessel. The cells which fill the others are large, round, or oval, and readily stain with carmine, presenting a great contrast to the surrounding horny tissue, which is stained yellow by picric acid.

On examining with the naked eye a section of the wall which has been stained with picro-carmine, we find that the horny laminæ take on a decidedly carmine tint, forming a marked contrast to the yellow wall.

I am quite certain that some of the large canals just spoken of contain a blood-vessel (it is generally contained in that canal nearest to the sensitive laminæ), but I am not clear on the point as to whether nerve tissue is found in them, though on three occasions I have seen a body in the canal closely resembling the nerve-endings found in the trunk.

The structure of the wall proper is simple; it consists of foramina and inter-foraminal tissue. The latter is composed of epithelial cells, each one containing a small nucleus; towards the canals the cells become compressed and elongated, constituting the rings or laminæ we see surrounding the canals; the latter are oval or elongated; the largest ones are found nearest to the sensitive structures of the foot, those situated anteriorly are narrower but longer. They take the carmine dye readily, whilst the surrounding tissue is stained yellow; the canals are filled with elongated cells, and it is these which, taking the carmine dye, give the colour to the part.

The structure of the sole is very much like that of the wall, only that here the canals nearest to the sensitive part are of considerable size, to accommodate long sensitive papillæ which pass down into the depth of the horny tissue for about half an inch; below this the canals get much smaller, and the structure closely resembles the wall. We must for a moment amplify the description given of the upper part of the sole. Here we find well-marked horny rings surrounding the canals, and the cells of these laminæ contain a nucleus closely resembling lacunæ; so much does this appearance resemble bone tissue that I think it possible for even an experienced microscopist to fall into an error respecting the structure if examining an unlabelled slide. The contents of these canals are stained carmine.

The points of interest in the skin of the elephant I believe to be these:—

1. The long finger-like papillæ on the tip of the trunk placed in connection with special nerve endings, and no doubt conveying that exquisite sensibility which the animal is known to possess in this part.
2. The compound primary and secondary papillæ in the skin.
3. The absence of anything approaching glandular structure.
4. The canal system which exists in all bristles, and in a modified degree in most hairs.
5. The arrangement of the horny and sensitive laminæ at the corners of the nail, and the presence of a blood-vessel in true horny tissue.

From careful inquiries made of competent persons, I believe that the skin of the elephant has not been previously described.

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## GLANDERS MASKED BY CATARRHAL PNEUMONIA.

DR. HARTZE, writing in the *St. Petersburger Med. Wochenschrift*, gives an account, a summary of which appears in *The Lancet*, of the case of a veterinary surgeon who had been engaged in treating horses for Glanders, and had subsequently worked in the laboratory of the Dorpat Veterinary Institute at bacteriological investigations of this disease. During last November, while he was working in the laboratory, he had an attack of Influenza which kept him three days in bed, and which was followed by a severe and persistent cough, for which he was advised to keep indoors. He did not follow this advice, and about three weeks after having returned to work was seized with a rigor and a feeling of discomfort in the chest, which was followed by stabbing pains in the side. On examination he was found to be suffering from Bronchitis and Pneumonia, which were supposed to be consequences of Influenza.

There was then no albuminuria, and the temperature was no more than a degree above normal. On the sixth day, however, a considerable quantity of albumen was found in the urine, and the temperature was 40·6°. On the seventh day the lungs still appeared to be affected with Capillary Bronchitis. There was little cough, but the sputum was tinged with blood. The patient now began to complain of severe pain in the joints of the feet, which were tender, but no swelling could be detected. The next day the knees became

painful, and a slight swelling could be detected around the ankle-joint, which was excessively painful; some small red eminences appeared in the neighbourhood similar to those of Erythema nodostun, and the knee joint was swollen and distended with fluid. The next day (the ninth) the patient was generally worse, and there was dyspnœa, but it was not until the tenth day that the infectious nature of the disease was suspected. The raised spots became livid, and there were streaks of lymphangitic character about the feet. The nose and face became red and swollen, and there was a sero-sanguineous nasal discharge. The diagnosis was fully cleared up on the examination of this discharge at the Veterinary Institute, by the detection in it of Löffler's Glanders bacilli. The next day pustules broke out in various parts, and great numbers of Löffler's bacilli were found in the pus contained in them, with a remarkable absence of other micro-organisms. The patient died on the twelfth day. A *post-mortem* examination could not be obtained.

Dr. Hartze remarked upon the difficulties of diagnosis which Glanders frequently presents. At first the symptoms are so little distinctive that diagnosis is usually impossible; subsequently they may be mistaken for those of pyæmia, and in chronic cases for those of Syphilis or Tuberculosis. In the present case the nature of the disease was masked by the Catarrhal Pneumonia which was present. The true proof, of course, is the detection of the Glanders bacilli of Löffler and Schütz. In this case not only were these found, but guinea-pigs and mice which were inoculated with the nasal discharge, became affected by the disease. In acute cases, according to Dr. Hartze, the prognosis is always bad; in chronic cases about 50 per cent. recover. The incubation stage is generally from three to five days, but may last longer.

## ASS-LYMPH FOR VACCINATION IN INDIA.

At Trichinopoly, in the Madras Presidency, successful vaccination has been carried out through the medium of the donkey, instead of the calf. As an experiment this fact may be of value, but from the deep-rooted antipathy with which the natives look upon the donkey, it is extremely doubtful if vaccine obtained in this manner can ever be brought into general use. It is well known, in many districts in Madras, that the most stubborn resistance has been offered to the introduction of vaccination, even with calf-lymph, and when we bear in mind that the cow is a sacred animal with the Hindoos, and if they are disinclined to undergo the process with lymph obtained from such a source, it is certain they will fight still harder against it if donkey-lymph be used. The natives are a most conservative people in their ideas, and firm to the last in adhering to customs handed down to them from their forefathers, and if any advancement is to be made in regard to vaccination the Government should most certainly not allow donkeys to be used for the production of lymph when any number of calves is available. No doubt such experiments as these are valuable from a scientific standpoint, but if they become generally known, they cannot prove in any other way than detrimental, if not disastrous, to the cause of vaccination in India.

## AMERICAN VETERINARY INSPECTORS AT OUR PORTS.

It is quite a new departure to allow a foreign Government to send inspectors to our ports to examine imported cattle, as if our own inspectors were not to be trusted to decide fairly as to whether animals landed are affected with contagious diseases or not. American authorities profess disbelief in the

statements of our veterinary officers as to the detection of Contagious Pleuro-pneumonia among cargoes of cattle received during the present year from the United States, and so they are allowed to send inspectors to the ports of London, Liverpool, and Glasgow, in order to satisfy their doubts upon the question. The policy of allowing this privilege is of doubtful expediency, to say the least of it; as the American officers may come to us with the foregone conclusion that the disease complained of is only sporadic Pleuro-pneumonia, and disputes between them and our inspectors must be the inevitable result.

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## THE *BRITISH MEDICAL JOURNAL* AND ARMY VETERINARY SURGEONS.

In last month's Veterinary Journal we drew attention to an unfair and unwarrantable allusion made to veterinary officers by Sir Andrew Clark, M.D., when, as member of a deputation, he addressed the Secretary of State for War on the question of substantive rank for officers of the Medical Staff; and we pointed out that the former had at least as good a claim as the latter to such rank, inasmuch as medical men were considered non-combatants by the Geneva Convention, and were accordingly protected by the Red Cross from certain risks incurred during war—such as capture, being intentionally killed, etc, while veterinary officers were not so privileged, and have to incur all the risks of combatant officers, which should give them a stronger claim to substantive rank. The *British Medical Journal* for August 23rd, in noticing our comments, is kind enough to acknowledge that the Veterinary Staff is very essential to the efficiency of the Army, and that it would gladly see its position better recognised in a military sense; "but," it adds, "to place its professional or military functions, as is here done, on a par—or even higher—than those of the medical staff is too obviously absurd. Exemption from capture under the Geneva Convention is a new definition of a non-combatant; as it is also new to us that veterinary surgeons go into action as combatants. We thought their function on the battlefield was chiefly to superintend the destruction of poor brutes stricken down. We would remind our contemporary of the number of medical officers killed and wounded in action; and that to men who thus carry their lives with them into the zone of fire, the argument that they are 'essentially non-combatant,' because, forsooth, they are theoretically 'exempted by the Geneva Convention from capture and some other war risks on that account,' is too subtle for their comprehension."

We may remark on this that we did not say veterinary surgeons went into action as combatants, but that they, not being recognised by the Geneva Convention, take the field and accompany their regiments or corps into action with certain war risks from which medical officers are exempted; because the latter were considered and designated as "non-combatants" by the said Convention, whose recommendations were agreed to, we believe, by all the European powers. Our contemporary does not seem to understand that a combatant is an individual who fights an enemy, defensively or aggressively, or both, and may capture or be captured, kill or be killed, in doing so. Such is certainly not the function of a medical officer, who is engaged to attend upon the sick and wounded soldiers, and in the performance, and on account of this duty, he is protected by the rules of war against certain contingencies, which protection is not accorded to combatant nor yet to veterinary officers. If medical officers are killed in the execution of their duty, this is by chance, and not intentionally; whereas veterinary officers, who also carry their "lives with them into the zone of fire," whatever that may mean, are liable to be killed or injured accidentally, as well as *intentionally*, and, in addition,

to be made prisoners of war. We refrain from noticing our contemporary's unworthy sneer at the duties of veterinary officers on service, as he evidently knows—or pretends to know—as little of them as he does of veterinary matters in general; in this he is certainly far behind his medical contemporaries, who are more liberal and enlightened, and not so offensively and obtrusively egotistical. We are of opinion that the remark of Sir Andrew Clark was uncalled for and devoid of foundation, so far as veterinary officers are concerned; and even the inclusion of Army chaplains in it was scarcely fair, as, if we are not mistaken, these officers, though men of peace, have had to assist, like others, in defensive operations during war emergencies—as at Rorke's Drift. In making our criticisms, we hasten to avow that we are not moved by any feeling of antagonism to the claims of medical officers, but, on the contrary, are desirous that they obtain every privilege which may enable them to carry out their duties more effectively and add to the dignity of their calling. These privileges may be solicited, however, without unworthy attempts being made by ill-informed and over-zealous persons to obtain them by detraction. If substantive rank be conferred on medical officers, we may rest assured that it will be also bestowed on their *confrères* of the Veterinary Department, whose claims to it, as we have said, are at least as strong. It may be noted that the veterinary officers of the Russian, Italian, Servian, and some other armies, have substantive rank.

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## TYPHOID FEVER ORGANISMS AND THE LOWER ANIMALS.

BY A. C. ABBOTT, JOHNS HOPKINS HOSPITAL.

THE paper by Cygnaeus, which recently appeared in Ziegler's Beiträge, appears to settle the question as to the infectious nature of the bacillus of Typhoid Fever for certain of the lower animals.

Hitherto, opinion has been divided upon this subject, and, perhaps we might say, the weight of evidence favoured rather the toxic than the true infective action of the organisms in the bodies of the animals operated upon.

Sirotinin, Beumer, Piper, and others claim that the changes and symptoms which appear in the animals inoculated are the result of a true toxic action due to the presence of Brieger's typho-toxine, whereas Fraenkel and Simonds, A. Fraenkel, Seitz, and others found pathological changes in the animals experimented upon by them, which, in general, were so analagous to those found in the human subject affected by the disease as to justify them in concluding that a true infection had taken place.

That a true infection, and not a toxic effect, may be present, a multiplication of the organisms in the body must occur, and this Cygnaeus has demonstrated. He finds that dogs and rabbits, in the circulation of which pure cultures of Typhoid organisms had been injected, showed a rise of temperature, looseness of the bowels, and death after about three days.

At autopsy, the spleen was found to be enlarged, the mesenteric glands swollen, Peyer's patches congested, and here and there necrotic areas in the ileum.

On microscopic examination of liver, spleen, and mesenteric glands the organisms were found to be present in their characteristic groups.

The finding of these groups of organisms in the spleen and liver is the deciding point, for this alone may be considered as proof-positive that there was an increase in the number of organisms in the body after inoculation, and that death had not resulted from the *toxic* action of the cultures employed.

In confirmation of the experiments of Cygnaeus I wish to call attention to

my own work in this direction. Though it was done during the summer of 1886, still I wish it to be distinctly understood that I claim no precedence for it over the work of Cygnaeus, which is in extent and completeness much in advance of the few experiments made at that time by me. In one of these experiments the results corresponded in every respect with those published by Cygnaeus—the experiment runs as follows:

July 23rd, 1886, 11.30 a.m. One and a half cubic centimetres of a watery suspension of the bacillus of Typhoid Fever were injected in the ear vein into the circulation of a rabbit. The animal was found dead July 26th, at 9 a.m.

Externally, the animal showed no evidence of having had Diarrhœa. Upon opening the abdomen the intestines were seen to be filled with yellowish, semi-fluid material. At the extremity of one Peyer's patch a small area of necrosis was found—three similar spots were noticed in the neighbourhood of the ileo-coecal valve and one in the vermiform appendix. One enlarged mesenteric gland was present. The kidneys were spotted with minute capsular hemorrhages. The spleen was not markedly enlarged. Throughout the small intestine there was a tendency to redness and enlargement of the solitary follicles.

Microscopic examination of the spleen revealed the presence of the Typhoid organisms grouped in the characteristic manner. Cultures from this organ gave pure colonies of a bacillus which grew on potatoes after the fashion described for the Typhoid organism. Longitudinal sections through the necrotic areas in the intestines showed the presence of minute hemorrhages into the submucosa and muscular coats. Many bacilli were also to be seen, but only at one point could a group characteristic of the Typhoid organisms be made out.

I cite the experiment, as has been said, only in confirmation of the interesting results obtained by Cygnaeus, and not with the idea of priority.

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## THE CONTAGIOUS DISEASES (ANIMALS) PLEURO-PNEUMONIA ACT, 1890.

THE following is the full text of this Act, which is described as "An Act for conferring further Powers under the Contagious Diseases (Animals) Acts, 1878 to 1886, with respect to Pleuro-pneumonia," which received the Royal assent on the 4th of July, 1890:—

Be it enacted by the Queen's most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, as follows:

1.—(1) The Board of Agriculture shall cause to be slaughtered all cattle affected with Pleuro-pneumonia.

(2) The Board of Agriculture may, if they think fit, in any case cause to be slaughtered:—

(*a*) Any cattle suspected of being affected with Pleuro-pneumonia; and

(*b*) Any cattle which are or which have been in the same field, shed, or other place, or in the same herd, or otherwise in contact with cattle affected with Pleuro-pneumonia, or which appear to the Board to have been in any way exposed to the infection of Pleuro-pneumonia.

(3) There shall be paid such compensation for animals slaughtered under this section as is specified under section twenty-one of the principal Act.

(4) Where the Board of Agriculture have decided that any head of cattle is to be slaughtered under this section the Board shall, if the owner of such

head of cattle by notice in writing so require, cause the same to be slaughtered within twenty-one days after the receipt of such notice.

(5) The Board of Agriculture may, for the purposes of the execution of this Act, employ such additional inspectors, valuers, and other persons, and at such remuneration, and may incur such expenses as, subject to the sanction of the Treasury, they think necessary.

2.—(1) For the purposes of this Act, so far as the same relates to Great Britain, there shall be opened an account at the Bank of England (in this Act referred to as the Cattle Pleuro-pneumonia Account for Great Britain).

(2) There shall be paid to the said Account—

(*a*) Such moneys (not exceeding £140,000 in any one year) as may be provided by Parliament towards defraying the costs of the execution of this Act in Great Britain; and

(*b*) All sums received by the Board of Agriculture on the sale of the carcases of cattle slaughtered under this Act, after deducting any amounts payable to the owners of such cattle under the third sub-section of section thirty of the principal Act.

(3) The costs of the execution of this Act in Great Britain shall be paid by the Board of Agriculture out of moneys standing to the Cattle Pleuro-pneumonia Account for Great Britain.

(4) If in any financial year the money standing to that account is insufficient to defray the costs of the execution of this Act in Great Britain, the Local Government Board and the Secretary for Scotland shall, out of the Local Taxation Account and the Local Taxation (Scotland) Account respectively, pay to the Cattle Pleuro-pneumonia Account for Great Britain in the proportions provided by this Act, such additional sums as may be certified by the Board of Agriculture to be required for defraying such costs.

3.—The inspector of the local authority who has made a declaration and served a notice under section sixteen of the principal Act, shall, in addition to the duties imposed upon him by that section, with all practicable speed, inform the Board of Agriculture of such declaration and notice and send a copy of the same to the Board of Agriculture.

4.—(1) For the purpose of ascertaining whether Pleuro-pneumonia exists or has within fifty-six days existed in any cowshed, land, or other place, an inspector of the Board of Agriculture may at any time enter such cowshed, land or place.

(2) The powers conferred upon an inspector of the Board of Agriculture by this section shall be in addition to those conferred upon him by section fifty-one of the principal Act.

5.—This Act shall apply to Ireland subject to the modifications and provisions contained in Part IV. of the principal Act, and in this section.

(1) The Lord-Lieutenant and Privy Council shall be substituted for the Board of Agriculture.

(2) There shall be paid to the General Cattle Diseases Fund—

(*a*) Such moneys (not exceeding twenty thousand pounds in any one year) as may be provided by Parliament towards defraying the costs of the execution of this Act in Ireland; and

(*b*) All sums received by the Lord-Lieutenant and Privy Council on the sale of the carcases of cattle slaughtered under this Act, after deducting any amounts payable to the owners of such cattle under the third sub-section of section thirty of the principal Act;

and the amounts so paid shall be carried to a separate account to be called the Cattle Pleuro-pneumonia Account of the said Fund, and shall be applicable solely to the purposes of this Act.

(3) The costs of the execution of this Act in Ireland shall be paid by the Lord-Lieutenant and Privy Council out of the moneys standing to the Cattle

Pleuro-pneumonia Account of the General Cattle Diseases Fund, and if those moneys are insufficient shall be paid out of the general account of that Fund.

(4) All expenses (including compensation for animals slaughtered) incurred before the commencement of this Act by any local authority or by or on behalf of the Lord-Lieutenant and Privy Council in executing and enforcing the provisions of the Pleuro-pneumonia Slaughter (Ireland) Order of 1888 (which order was made by the Lord-Lieutenant and Privy Council under the Contagious Diseases (Animals) Acts, 1878 to 1886, on the 6th day of March, 1888), shall be charged to and defrayed out of the Cattle Pleuro-pneumonia Account of the General Cattle Diseases Fund.

6.—(1) At the end of every financial year accounts of the receipts and expenditure of the Cattle Pleuro-pneumonia Accounts established under this Act shall be made up in such form and with such particulars as may be directed by the Treasury, and such accounts shall be audited by the Comptroller and Auditor-General as public accounts in accordance with such regulations as the Treasury may make, and shall be laid before Parliament together with his report thereon.

(2) If at the end of any financial year the Treasury, after communication with the Board of Agriculture or the Lord-Lieutenant and Privy Council, as the case may be, are satisfied that the balance standing to the credit of either of the said Cattle Pleuro-pneumonia Accounts or any part of such balance will not be required for the purposes of this Act, they may:—

(*a*) In the case of the Cattle Pleuro-pneumonia Account for Great Britain direct such balance or part to be paid in the proportions provided by this section into the Local Taxation Account and the Local Taxation (Scotland) Account, in repayment of any sums which have been paid to the Cattle Pleuro-pneumonia Account out of the said Local Taxation Accounts; and

(*b*) In the case of the Cattle Pleuro-pneumonia Account of the General Cattle Diseases Fund direct such balance or part to be paid into the general account of the said Fund in repayment of any sums which have been paid out of the said general account for the purposes of this Act;

and in either case the Treasury may direct any balance or part which may not be required for such repayment to be paid to the Exchequer.

(3) The proportions in which any sum is to be paid out of or into the Local Taxation Account and the Local Taxation (Scotland) Account under this Act shall be 88 per cent. of such sum out of or into the Local Taxation Account, and 12 per cent. out of or into the Local Taxation (Scotland) Account.

(4) All moneys paid under this Act out of or into the Local Taxation Account shall in account be charged against or credited to the proceeds of the Probate Duty.

(5) All moneys paid under this Act out of or into the Local Taxation (Scotland) Account shall in account be charged against or credited in manner provided by any Act hereafter passed respecting the application of any Customs or Excise Duties paid to the Local Taxation (Scotland) Account.

(6) Payments out of and into the said Cattle Pleuro-pneumonia Accounts and all other matters relating to the accounts and to the moneys standing to the credit of the accounts shall be made and regulated in such manner as the Treasury direct.

7.—Section twenty-one of the principal Act is hereby repealed from the beginning of the section to the words "under this section."

8.—(1) This Act may be cited as the Contagious Diseases (Animals) (Pleuro-pneumonia) Act, 1890, and so far as is consistent with the tenor thereof shall be construed as one with the Contagious Diseases (Animals) Acts, 1878 to 1886.

(2) The Contagious Diseases (Animals) Acts, 1878 to 1886, and this Act may be cited together as the Contagious Diseases (Animals) Acts, 1878 to 1890.

(3) The Contagious Diseases (Animals) Act, 1878, is in this Act referred to as the principal Act.

9. This Act shall come into operation on the first day of September, one thousand eight hundred and ninety.

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## AN IMPERTINENT ABSURDITY.

WE insert the following letter, which was allowed to appear in the *British Medical Journal* for August 23rd, as an illustration of the absurd notions that find their way into print with regard to veterinary matters, from people who certainly ought, from their professional position, to know better. Dr. Brierley evidently does not know how much disaster, and how many thousands of pounds, the interference of the medical profession cost this country during the Cattle Plague invasion of 1865-66; nor can he be aware that at least two similar invasions of the same disease were at once "stamped out" since then, when the recommendations of veterinary surgeons were adopted; also that the scourges known as "Sheep-pox" and "Foot-and-Mouth disease" have been totally eradicated by the same measures. Contagious Pleuro-pneumonia will be got rid of in the same way, and the potency of veterinary medicine be again demonstrated. When the doctor can show as good a record for his own profession, then he might venture to interfere; for the present, we can only designate his suggestion by the above heading, and would remind him of the old saying about the cobbler adhering to his last. With a host of serious contagious diseases afflicting the human species, and which medicine appears to be impotent to cure, let alone eradicate, his conduct is certainly not commendable. Charity should begin at home, and he ought to be told that veterinary medicine is perfectly competent to deal with its own special affairs, to rid the country of every contagious disease to which the domesticated animals are liable, and to relieve suffering humanity to a considerable extent in doing so. More than this need not be said at present.

THE PLEURO-PNEUMONIA ACT.

SIR,—The provisions of this Act indicate the completest impotence of veterinary medicine. It is a calamity if the wholesale slaughter of healthy animals is the only means science can suggest for stamping out a disease. If Pleuro-pneumonia be contagious, will not complete isolation prevent its spread? If it be infectious, will the barbarous practice of butchering all animals around an affected one determine its ravages?

Some years ago a young cow was taken suddenly ill at the farm I was living at; the local farrier at once pronounced it the "pleura," and said the whole stock would likely be attacked. Without delay I removed the patient to a stable, a distance of sixty yards away, had the shifter cleansed and lime-washed, and also the stable, which was now my hospital. The cow died on the third day, and on examination I found it a distinct case of "Pleuro-pneumonia." The carcase was at once buried; not another case was affected.

In Lancashire last week forty-eight sound animals were slaughtered and, I presume, buried. It is simply monstrous, while we have our markets flooded with imported meat of a very third-rate quality, and at a price we ought to be able to procure good English meat at. But take the loss to the country at only £15 a beast=£750. For this sum fifteen hospitals, of six compartments each, could be built in brick. What, Sir, is to prevent every farm having such provision?

I trust you will take up this matter, and bring the power and influence of

the medical profession to bear upon it. Through the *British Medical Journal* much can be done.—I am, etc.,

Old Trafford. JAS. BRASSEY BRIERLEY, M.D.

P.S.—In three out of every five butchers' shops you can find a tuberculous pair of lungs hanging up.

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## TRANSMISSION BY MEDIATE CONTAGION OF CONTAGIOUS PLEURO-PNEUMONIA.

Two well-authenticated cases of the transmission of contagious Pleuro-pneumonia by mediate contagion, were given by Dr. W. H. Wray, in May, 1887, while performing the duties of chief inspector for Maryland. He reports to the United States authorities:—

The following instances show that contagious Pleuro-pneumonia can be conveyed, without doubt, by mediate contagion, and that as a preventive measure disinfection of all buildings and surroundings should be thoroughly done:—

*Case No.* 1.—A butcher, who had possession of the wagon used for the conveyance of animals affected with Pleuro-pneumonia, left it in the yard where his two cows were kept. About one month after the wagon had been left there, one of the cows was taken with acute Pleuro-pneumonia. She was slaughtered, and on *post-mortem* examination her left lung was found completely hepatised, well marbled in appearance, and about one gallon of serum was found in the thoracic cavity. A few weeks later the other cow was affected and slaughtered, and the same lesions were found in the right lung. These animals were bought by the owner three and four years ago respectively, and had never been away from the place, except to the bull, and for this purpose the last time was fully a year ago. There was no communication with the animals brought on the place for slaughter, neither did any of the butchers or men connected with the slaughter-house come in contact with them. The only thing the two animals came in contact with that had been exposed to Pleuro-pneumonia, was the wagon referred to.

*Case No.* 2.—A herd of thirty-four head of cattle on the Hookstown Road was slaughtered on January 5th, 1887. A new barn had been built about fifty yards from the old one, and filled with new animals about three weeks after. Word was left with the owner that the old stable should be thoroughly disinfected and cleaned before putting any more animals in it, and he was requested to let me know when he was ready and I would attend to the matter for him. This he neglected to do, but whitewashed and sprinkled chloride of lime and carbolic acid around the stable himself, thinking this would be sufficient. His new stable being full, and needing more cows, he purchased eight head about the latter part of March, and put them in the old stable. On May 7th, twenty-eight head, all new purchases, were inpected by Dr. Martenet and all found in good health. On May 18th, the owner called at the office and stated that he was afraid that he had two cows affected with contagious Pleuro-pneumonia. I inspected this herd of thirty head on May 20th, and found his suspicions well grounded, as both animals were affected with acute Pleuro-pneumonia in its worst form. One had a temperature of 106° F., and complete dullness and loss of respiratory murmur on left side, hard, dry cough, and a grunt at every inspiration. The other cow had a temperature of 104½° F., with crepitation well marked over the whole surface of right lung. On *post-mortem* examination both cows showed all the characteristic lesions of acute Pleuro-pneumonia. The new herd was inspected by Dr. Dimond previous to going to this place, and all were found in a healthy condition. There was no way of their coming in contact with the contagion except through the old barn.

## FORAGE FOR MILITARY PURPOSES.

BY GEORGE FLEMING, C.B., LL.D., F.R.C.V.S., PRINCIPAL VETERINARY SURGEON OF THE ARMY.

### LECTURE II.

(*Continued from page* 428, *vol. xxx.*)

As I have already stated, a certain amount of good food is necessary to keep horses in health and condition, and if work is heavier than usual, or they are exposed to bad weather, or have to undergo severe hardships, then additional forage should be given, and in proportion to the increase in waste of the body through these exactions.

Horses for war should always be in a fit condition for the field, and therefore there ought not to be much variation in the forage ration during peace, except an increase to a small extent when the drills are heavy, and a decrease when the work is light. What the peace ration should be is shown in that laid down for each of the principal European armies. For our own army, I have pointed out that size, work, and season are scarcely taken into consideration in fixing the ration. I think it would be advantageous to modify it to meet the requirements of these. If 10 lbs. of oats and 12 lbs. of hay are only sufficient for horses when in barracks at out-quarters, surely this allowance is insufficient when on the line of march or during the drill season!

Compared with the horses of civilians, it cannot be said that, when undergoing a like amount of work, army horses receive too much food. For the largest-sized draught-horses, which perform steady, hard work for a number of hours during five or six days in the week, the daily allowance of food for each horse is about 18 lbs. of hay and a small proportion of straw, cut into chaff, with 18 lbs. of oats, and a pound or two of peas or beans. The usual weight of dry food absolutely consumed by an average-sized, well-conditioned cart-horse moderately-worked, regularly fed, well-stabled, is from 29 lbs. to 34 lbs. daily, of which the hay and straw should constitute about two-fifths; and it is generally recognised that, no matter how nutritious it may be, less than 29 lbs. will not suffice to maintain the body in a fit state for work. In a stud of cart-horses in Liverpool, the following was the daily allowance:—Maize, 10 lbs.; Egyptian beans or Canadian peas, 5 lbs.; oats, 2 lbs.; oatmeal and linseed, 1·3 lbs.; bran, 2·1 lbs.; hay, 10·6 lbs.; roots and grass, 3 lbs. The maize, and beans or peas, with the bran and chopped hay, formed the basis of the usual food allowance. The oats and linseed were only used for sick or delicate-feeding horses. The oatmeal was made into gruel, of which each horse was allowed a drink on returning to his stable when the day's work was done. The roots and grass were given during the months it was considered advisable to use them. In autumn and winter the grain was crushed and given uncooked, except a night feed of steamed food two or three times a week. In spring and summer the grain was steamed, but an occasional meal of dry food was allowed as a change. A further change, both in the quantity and proportion of the grain given, was also frequently made, as conditions of weather or work appeared to require, but the autumn allowance was always considered the most invigorating. The bulk of the hay was given in the form of chop or chaff with the grain, 2 lbs. or 3 lbs. of long hay being reserved for night consumption. The best clover hay was always used; and a small quantity of straw was sometimes chopped with the hay. The horses were of average size, moderately worked for six days, and one-fourth of their number for about three hours on the seventh day; their condition was good.

A company employing a large number of horses which draw heavily-laden carriages, allows the following ration for each horse per diem:—Hay, 16 lbs. oats, 10 lbs.; beans, 5 lbs.; maize, 4 lbs.; bran, 2 lbs.; total, 37 lbs. of food for

every day. The hay is all chopped, and the grain crushed separately, then both are mixed before being given to the horses.

Every Saturday night each horse is allowed a mash of linseed, mixed with a small proportion of bran, boiled altogether, and given warm. When the work is less, then less grain is given. This, I believe, is about the usual quantity of food allowed for the larger, slow-paced, and steadily worked horses of civilians. For those of smaller size, but performing work at a faster pace—such as omnious or tram-car horses—a smaller allowance of food is generally given. The following was the daily ration of the principal tramway companies in the United Kingdom not long ago. It may be observed, however, that this allowance varies in the proportions, according to the price of forage in the market, and also sometimes according to the season:—

| *North Metropolitan.* | lbs. |
|---|---|
| Maize | 13 |
| Oats | 3 |
| Beans | 1 |
| Peas | 1 |
| Hay, chopped | 7 |
| Straw „ | 3 |
| Total | 28 |

| *London.* | lbs. |
|---|---|
| Maize | 7 |
| Oats | 3 |
| Peas | 3 |
| Hay, chopped | 12 |
| Straw „ | 1 |
| Total | 26 |

| *London Street.* | lbs. |
|---|---|
| Maize | 12 |
| Oats | 3 |
| Beans | 1 |
| Bran | 1 |
| Hay | 11 |
| Total | 28 |

| *South London.* | lbs. |
|---|---|
| Maize | 7 |
| Oats | 7 |
| Beans | 1 |
| Hay, chopped | 11 |
| Straw „ | 3 |
| | 29 |

| *Birmingham.* | lbs. |
|---|---|
| Maize | 6 |
| Oats | 10 |
| Beans | 4 |
| Chaff | 12 |
| Total | 32 |

| *Liverpool.* | lbs. |
|---|---|
| Maize | 12 |
| Beans | 4 |
| Chopped hay | 14 |
| Bran | 1 |
| Total | 31 |

| *Manchester.* | lbs. |
|---|---|
| Beans, Oats, Maize | 15 |
| Hay | 15 |
| Total | 30 |

| *Glasgow.* | lbs. |
|---|---|
| Oats | 6 |
| Maize | 11½ |
| Hay | 8½ |
| Straw | 1 |
| Bran | 0 |
| Total | 27 |

| *Edinburgh.* | lbs. |
|---|---|
| Oats | 8 |
| Maize | 4 |
| Beans | 4 |
| Hay | 14 |
| Marshlam | 2 |
| Total | 32 |

| *Dublin.* | lbs. |
|---|---|
| Maize | 14 |
| Oats | 3 |
| Hay | 12 |
| Bran | 0½ |
| Total | 29 |

The work of these horses is performed at a trot of about 7 or 8 miles an hour, with very frequent stopping and starting, and the average distance travelled is probably about 13 or 14 miles a day. Omnibus horses receive a similar ration, but the work is not so heavy.

In the pre-railway days, the horses which drew the mail and stage coaches were most liberally fed, and this liberality was well rewarded by the manner in which their work was done and the appearance they presented. "Nimrod" (Mr. Appleby), in his work on "The Chase, the Turf, and the Road" (published in 1837), alluding to these horses, says: "No horse lives so high as a coach-horse. In the language of the stable, his stomach is the measure of his corn; he is fed *ad libitum*. The effect of this is visible in two ways: first, it is surprising to see how soon horses gather flesh in this severe work, for there is none, so far as muscular exertion goes, more severe while it lasts; and, secondly, proprietors find that good flesh is no obstacle to their speed, but, on the contrary, operates to their advantage."

It is scarcely possible to compare draught Army horses with those employed in this way in civil life, with respect to the amount of work they have to undergo, and especially when the former are in the field. The demands of active service are generally of the most exacting and harassing kind. Much of the traction may have to be done where there are no roads, and often in heavy ground; while with some corps—as the horse artillery, and even the field artillery—the pace may require to be fast, and over very difficult country. At the same time, the horses generally have to remain without shelter and exposed to the weather, and receive but little attention, so far as grooming is concerned. Civilians' horses labour under none of these disadvantages in performing their service. They work on well-made roads, have a definite amount of regular toil every day, are comfortably housed, cleaned, and regularly watered and fed by men who are themselves comfortable and exempt from danger, hunger, and exposure.

Army horses, therefore, employed in draught should be at least as well fed as those of civilians, more especially when the former are on active service. The grain ration should be high, as liberal, in fact, as that of the coach-horses mentioned by "Nimrod." 16 or 18 lbs. a-day per horse would not be too much, particularly in long and rapid marches, and even more should be given if the weather is at the same time unfavourable. If the grain is crushed, so much the better; indeed, for tired horses especially, all grain should be so prepared. The amount of hay in the field is a secondary consideration; as the grain is increased in quantity, the allowance of hay should be diminished.

With regard to cavalry horses the same remarks apply. The work of such horses is, in many respects, like that of hunters, though it is performed in very different circumstances, and under disadvantages such as hunters never experience. Carrying far heavier loads at all paces, cavalry horses may be required to exercise their energies for days together in bad as in good weather, and without being comfortably stabled or cared for after the day's toil is over: the food being often scanty, and of bad quality at the same time. The hunters, on the contrary, rarely have more than two days a week in the field, and they are seldom overweighted then. They are not troubled with dead hamper on their backs in the form of kit and equipment, as troop horses are, nor, like them, have they to carry from 18 to 20 stone, unless specially selected by their size and strength to move easily with such a load. Troop horses cost £40 a-head to buy; hunters, to carry the weight they support, would fetch several hundreds of pounds each. The allowance of forage for a hunter of this size is probably not less than 16 lbs. of the best oats daily, to which probably 1 or 2 lbs. of beans and some carrots will be added, while 8 or 10 lbs. of excellent hay supplements the grain. Kept in a warm stable, clothed,

bandaged, and groomed in a manner to which the trooper is an utter stranger, and with only two days' work in seven, at the end of the hunting season such horses, nevertheless, often show marked signs of fatigue and wear.

Need we wonder, then, that cavalry horses on a campaign should soon begin to break down, when taxed as hunters never are? One chief cause for breaking down is insufficient food, and, therefore, though serious obstacles may arise to hinder ample supplies of forage being obtained, everything possible should be done to keep the horses well fed. Cavalry must act with celerity and energy, in order to favourably influence the success of a campaign; and unless the horses are well attended to in the matter of forage, their action must be weak and slow, and losses among them will be heavy.

These remarks apply more particularly to the horses bred in this country, to which a plentiful supply of good forage is absolutely necessary. Whether it is because they are not inured to hardship, to which they are indeed rarely exposed at home, and seldom miss a meal, much less lose a day's ration, or that they are constitutionally delicate, and suffer to an extraordinary degree when their ordinary allowance of food is diminished, certain it is that, unless they receive particular attention in the matter of aliment on active service, they quickly give in. In this respect they differ much from the horses of other countries, and especially those bred in the East. More powerful and fleet than they when well supplied with pabulum, they offer less resistance to the effects of short rations, and become of little use when receiving an allowance upon which other races can undergo severe fatigue. It is true that our horses are never tested by experience of the hardships of war in their own climate, nor usually in a climate resembling their own; and this may afford a reason for their being easily rendered inefficient when sent on active service out of this country, as climate at first affects horses more seriously than it does men. The fact remains that, unless very well fed and cared for, our horses, light and heavy, have a great tendency to become feeble—to lose heart on service; our recent campaigns in South Africa and in Egypt and the Soudan afford ample confirmation of this, while our experience with other races shows that they are not so susceptible.

Take, for instance, the small horses generally designated Arabs. It is wonderful the power of endurance they display when carrying heavy loads for long periods, and receiving at the same time a very scanty allowance of food. One of the most notable instances of this natural hardihood was afforded by the 19th Hussars in the Soudan, in 1884-85, and deserves mention here, as it is not only pertinent to the subject under discussion, but reflects great credit upon that excellent regiment, and especially upon its then chief—the lamented Colonel Barrow—surely one of the most promising and accomplished cavalry Officers our Army has produced.

The regiment was mounted on Syrian horses, whose average height was about 14 hands, and average age 8 or 9 years old, though about 15 per cent. were more than 12 years old. Some 50 per cent. had been through the campaign in the Eastern Soudan with the regiment in the early part of 1884, and returned in a very exhausted condition; and about 10 per cent. had been at Tel-el-Kebir. In June, 1884, they were taken to Assouan from Cairo in barges, and remained there three months. In September they were marched to Wady Halfa, a distance of 210 miles, and there 350 were, in November, handed over to the regiment; all except some 10 per cent. being in fair marching condition. The regiment marched from Wady Halfa to Korti, about 360 miles, the average daily march being about 16 miles, not including halts, which were for four days.

The ration was supposed to be 8 lbs. of grain—barley or dhourra, and 6 lbs. of dhourra stalk; but owing to scarcity, the horses generally received about 6 lbs. of grain and 10 lbs. of stalk. They arrived at Korti in good condition,

remaining there for about a fortnight, and receiving about 8 lbs. of green dhourra stalk daily, instead of dry stalk, upon which they improved. At the end of December, 40 horses proceeded to Gakdul, 100 miles, and performed the reconnaissance duties of the column. The march was accomplished in 63 hours; 15 hours' rest was allowed, and then the return march was completed in the same time as the outward one, except that 6 horses did the journey in 46 hours, the last 50 miles occupying 7½ hours. During the 141 hours of the march, the horses were ridden for 83 hours. On January 8th the 155 horses, and 127 men, with 8 officers, crossed the desert with General Sir Herbert Stewart's column; there being an extra horse for each officer, and 12 spare horses for the men. The average forage ration for the first 10 days was from 5 to 6 lbs. of grain, with two gallons of water; 31 miles were marched daily, not including one day's halt. When the first advance was made to Matammeht the horses marched to the Nile without having received a drop of water for 55 hours, and only 1 lb. of grain. Some 15 or 20 horses received no water for 70 hours. Between January 20th and February 14th the horses received no grain, but received about 10 lbs. of dhourra stalk daily, or 12 lbs. of green dhourra or green beanstalk. Two days before marching they had 6 lbs. of grain each. They performed outpost and patrol duty, averaging about 8 miles daily, and under these conditions they recovered from the effects of the desert march, though many were in a weak state. For the first 75 miles, the horses had only 4 lbs. of grain and 3 gallons of water; for the remainder of the journey water was plentiful, and 8 lbs of grain could be spared for each horse. Two marches of more than 40 miles each were made—evidence that the horses were still in a fit state. After two weeks' rest at Korti, the horses marched strong and well to Dongola and other stations, receiving plenty of food and water, and after two months' halt they were in quite as good condition as when they left Wady Halfa. The return march to the latter place—about 250 miles—was performed at the average rate of about 16 miles a day, with one halt for two days.

During this nine months of a hard campaign, in which more than 1,500 miles were marched, only twelve horses perished from disease, though from other casualties fifty-nine were lost. The weight carried by each of these ponies never averaged less than 14 stone, and during the last four months of the campaign was very trying, and the scarcity of water was often severely felt. The management appears to have been excellent; the horses were spared as much as possible from unnecessary fatigue, the men never being allowed to remain in the saddle a moment longer than was needed; marches in column were avoided, extended line being adopted, and when picketed the horses had always plenty of room, and their heads to the breeze. They were allowed to graze, on every possible occasion, on the grass of the Bayuda Desert, though it was too dry to be swallowed.

I think it is pretty certain that English horses would not have survived such an ordeal as this.

In India somewhat similar incidents have been recorded, cavalry horses having successfully undergone long and severe marches on small rations; and Darwin, in his "Voyage of a Naturalist Round the World," mentions the great endurance of South American horses, particularly describing a journey he made in which his horses had no food for five days.

Whether our horses could be trained to undergo such fatigue and fasting is a question which cannot be answered offhand; but it would be well not to depend upon their displaying much fortitude in the matter of short rations in the field, but rather to make provision for their wants being supplied in no stinted manner. If their powers of endurance are not so developed as in some other races, yet they far excel these in other important respects; like their masters, they possess exceptional qualities which are most

conspicuous when food is plentiful, and, knowing this, our aim should be to provide it in sufficient quantity and of good quality—whether the horses are in quarters or the field. To succeed in doing this requires more than ordinary care and attention on the part of those who are responsible for the efficiency of our mounted troops. Forage rations are as difficult to deal with, perhaps, as are the soldiers' rations—so far as quantity and quality are concerned.

Lieutenant-Colonel COLVILE: As someone must make a start, with your permission I will make a few observations. The paper which has been read by Dr. Fleming is an extremely interesting one, but it is of a technical character, and, therefore, is probably interesting only to those who take more or less interest in horses. If you take the paper as a whole, it consists in this, that horses used in civil life in the country and horses belonging to people not in the Army are fed according to the climate, according to the work they have to do, and according to the season of the year; but that in the Army this rule is not observed, and they are fed all the year round exactly in the same way. Whether the paper is intended to bring that particular feature prominently forward or not I do not know, but I should have thought that any man who was not blinded by innumerable rules of red tape would have acknowledged that that was common sense, and should be observed both in the Army and out of the Army. I should like, as a matter of information, to ask Dr. Fleming whether these Syrian ponies, to which he referred, were entire, or whether there were any mares, and if so, what proportion of mares there were? Dr. Fleming tells us that all horses in the Army, as they necessarily would be the first called upon for active service, should be kept well fed and in a high condition, ready to take the field at a moment's notice. That, of course, is perfectly right as to foreign armies, where they have to move by land; but is not there this to consider, that in England before the active operations commence, the horses would probably have to travel some distance by sea, and if they were in too high a condition it would be more injurious to them than if they were in a lower condition, not so well fed, and softer? That is one of the great disadvantages that cavalry now have to undergo in the English Army—they have to travel by sea, and they lose their condition even if they have it, and if their condition is too high they are apt to die. I must confess to being a little disappointed at the lecture. I came in hopes of hearing some proposal from Dr. Fleming as to an improved method of obtaining the forage and of distributing it. I have always thought, and still think, that the system upon which our cavalry horses are fed is not either economical or judicious; that the forage should be purchased by the Army direct, without the intervention of any middleman; that there should be a store in a central position like Aldershot; that all ought to be chopped and mixed, and then should be distributed in bags, say of 90 lbs., sufficient for three horses or more—in the case of cavalry they do not get so much. The horses would then get all they are supposed to get, and you would be certain that the quality of the hay and oats was really such as was paid for, in which case the taxpayer would benefit to the extent to which the contractors now unduly benefit.

Inspecting Veterinary Surgeon W. B. WALTERS: I should like to say a few words with reference to Dr. Fleming's interesting lecture. I can, perhaps, answer one of the questions asked by Colonel Colvile, with reference to the purchasing of forage. For some time past forage has been purchased in Aldershot direct, by Officers of the Commissariat Department, and up to the present the system has answered admirably. With reference to horse feeding generally in the Army, I quite agree with the lecturer that it requires investigation and revision, because I am quite sure that the habit of feeding heavy horses with the same weight of grain and hay as light horses is wrong

in principle. The heavy horses are generally the first to suffer in condition on a campaign, and, therefore, require more food in proportion to their bulk than the lighter ones. At the same time I think that if, say, three scales of forage were adopted—I., II., and III.—I., for heavy cavalry and draught horses; II., for medium cavalry; III., for light cavalry, infantry officers' chargers, and so on—it would be quite sufficient, because I think the German system is very much too complicated. It is excellent in theory, but in practice it would hardly be found to be quite as perfect. Then also as to increasing the ration on the line of march, mentioned as being adopted in the German Army, I do not quite see why horses should receive an addition to the ordinary scale of ration while actually on the line of march, because the result of this extra feeding—improved condition and increased powers of endurance—should be, I think, present at the time the horses are marching. The effect of giving extra food only during the period of increased exertion would be almost like giving a man a heavy meal just before he has to run a race. It is better to *prepare* horses for the line of march by commencing the extra rations some weeks before they are required to start. As regards the quality and weight of the oats supplied to Army horses, I certainly think that the grain should not weigh less than 40 lbs. the bushel, because in nearly all samples of foreign oats—and the grain purchased for the Army is principally of foreign growth—there is an admixture of seeds which are not only innutritious, but in many cases deleterious in their nature. I have always been an advocate for crushed oats. It has been observed by many Officers in the Army that the issue of crushed oats on a compaign would be a matter of difficulty if not an impossibility. I think, on the contrary, that there would not be the slightest trouble about it. Crushed oats are considerably more easily digested and assimilated than whole oats, and I am of opinion that 10 lbs. of grain in this form is equal in nutritive value to 11 or 12 lbs. of uncrushed oats. That form of forage known as "grain cake" is most excellent of its kind, and certainly is far easier of transport than the same weight of whole oats. With regard to the loss of condition of horses on service, my experience of campaigning has taught me that cavalry horses are generally the first to fall away, particularly those of heavy cavalry; therefore it is quite necessary that our cavalry horses should be kept up to the highest standard of condition at all times. Of course we know perfectly well that prior to embarking horses for a long sea voyage, it is very necessary to make an alteration in their diet, in fact to prepare them for a period of inactivity; but if animals are embarked in a high state of health and vigour, the loss of condition during the voyage will not be great, and will soon be recovered. With regard to the Egyptian horses mentioned by Dr. Fleming, I had some experience of this class of animal in the Soudan, and thoroughly agree with every word that he has said. They were principally stallions, and these hardy little animals certainly did their work wonderfully well without suffering from privation or climatic influences to anything like the extent experienced by the English horses, although often placed under less favourable conditions.

Colonel F. J. GRAVES, 20th Hussars: Colonel Colvile expressed his regret that the lecturer had not made any proposition. Although there was no direct proposal made, I think it is evident that a useful proposition was made by inference, and I think it is very necessary that the whole question should be investigated with a view to the proper proportioning of forage to the horse's size, work, and to the season; and I am quite in agreement with such a proposal being carried out. It seems to me to be absolutely absurd that a horse at 15.2 carrying a hussar of my own regiment should be fed all the year round upon 10 lbs. of oats and 12 lbs. of hay in the same way as a horse of 16.2, and perhaps 300 lbs. heavier in total mass, carrying possibly from 21 to 22 stone; it seems ridiculous on the face of it. There is a very

interesting comparison drawn in the lecture between two batches of artillery, both before and after eighteen days' hard work. In my own regiment at Norwich the other day, an experiment was carried out, not before and after hard work, but positively during a time of what one might call comparative idleness. We had some sixty odd horses, one squadron, put under experiment. I am sorry to say the instructions with reference to carrying out the experiment were so limited that I do not think the result of the experiment or the reports thereon will be helpful in any way, and for this reason: the instructions conveyed to us were simply to report as to the advisability, as I gathered, of a permanent reduction of 2 lbs. in the general ration of oats. This experiment was carried out in the furlough season when we probably had not enough men to groom the horses, let alone exercise them, and when there was very little or no drill done, for the simple reason that we are forbidden to go on the drill-field for fear of cutting it up; and under the further ridiculous condition that every day the horses did happen to go out on outpost duty on the roads, they were to have 2 lbs. of oats extra. The sum total was this: that just as the horses, after their eighteen days' work in these two batteries of artillery, lost a certain amount of weight, so the whole of the squadrons, with the exception of six horses, lost on an average 35·5 lbs. after two months. They were weighed before the commencement of the experiment, after the first month, and also after the second month had concluded, and the result in the end was an average reduction, as I say, in the whole squadron, with the exception of six horses, of 35·5 lbs. The six horses had gained something under 6 lbs. apiece. What is to be learnt from that experiment? The horses had been doing comparatively little work; they were very fat; our stables at Norwich are dark, and that contributes towards the accumulation of fat, I think. They are also warm, and there is another inducement to fat. The simple lesson I learnt from that experiment was that I considered the horses had got rid of, what was positively an incubus to them, and, if I may say so in the presence of the lecturer, what I consider, if they were going on service immediately, would be a danger to them, because horses grossly overloaded with fat are certainly, to my mind, more liable to inflammatory diseases than horses in fairly good working condition. Comparison has been made of the foraging of our Army horses with those of the German, French, and Russian armies, and looking through the lecture yesterday I gathered that in those countries from which comparisons have been drawn, the nutritive value of the ration, as a whole, is considerably higher than ours. I began to think why it should be so. I think it is for this simple reason, which does not do us, as a sensible people, much credit, that with the exception of Aldershot, the Curragh, Dublin, and one or two other stations, it is impossible for our cavalry to carry out efficient cavalry instruction in the way in which it is possible for the German, French, and Russian armies to carry out their instruction, and for the simple reason that we have not the ground to do it on. Von Schmidt, the great cavalry instructor in Germany, insists on long advances of two or three miles. Where can we get that at Norwich, Brighton, Shorncliffe, Leeds, Manchester, or any other such place? We are put into a reformed turnip-field, and are supposed to do everything it is possible to do with cavalry, confined as we are in such a spot. Therefore it would be absolutely necessary that the nutritive value of rations in Germany and elsewhere should be greater than with us. Although we have a less quantity given, I am quite clear that in times of peace, and especially during the idle season, the winter season, when drill grounds are not available, our horses are over-fed. I am quite clear in my own mind from what I have seen that they are over-fed at that time, and possibly during the manœuvring season, of which we have had too little in this country, they are under-fed. If they were given the forage during the idle

time at a reduced rate I am quite sure the Government would allow us to draw the balance during the hardworking season, and there would be no extra expense to the country. I do not think that there is anything which should prevent that being made a definite proposal. The cake that was referred to in the lecture is simply the horses' natural food under compression. 9 lbs. of that cake and 8 lbs. of hay produced an equal result at Aldershot to 12 lbs. of oats and 12 lbs. of hay, simply because it is crushed. Therefore, I think, if it could possibly be done, that the oats issued, especially at the out-stations, while they might be reduced in quantity, might with great advantage be crushed. We have gone a little way in that direction in my own regiment. We have now four chopping machines in the regiment at Norwich, and I suggested about a month ago that defaulters and the few men now and then in the cells, instead of having shot and pack-drill, should be told off in small parties under the orderly corporals of troops, to cut the whole of the necessary chop for the troops in the morning. It is now done, and with very great advantage. One great advantage I would like to notice. The horses eat their food ever so much more slowly; there is no bolting of the food and scattering it about all over the stalls to be trodden down and spoiled; but the horses stick their heads into their mangers and munch away, quietly turning over the chopped hay, picking out the oats, and then finishing up with the chop that remains. It takes a horse one-third or half as long again to eat his food in the stable, with chopped hay under these conditions. I do not see, if we have hay-chopping machines, why we should not do something out of the canteen, or some other fund—the Government I do not suppose will pay for them—in getting some oat-crushers. I am quite sure it would be impossible to get crushed oats from the contractors in a satisfactory way. There is no article of consumption for the horse which is so adulterated as oats *bought crushed*, but to buy oats in the ordinary way and crush them afterwards is quite feasible. There is another point I should like to touch upon. Dr. Fleming in suggesting by inference the changes indicated and the necessary inquiry—perhaps being in an official position in the matter—fought rather with the gloves, but I think there is one point upon which we ought to hit out pretty hard. There is no article paid for by the taxpayer, I believe, round which circumstances of corruption of the grossest form circle so much as the supplying of our horses with forage; I am quite clear of that. I could keep this meeting very much longer than the ten minutes which I am allowed by giving you the *ipsissima verba* of things which have come under my own personal knowledge, which I have run to earth, in the way of corruption in this matter. To take one very simple case, which unfortunately came to my cognizance too late to act upon. At a certain station and at a certain time every single officer's groom in a regiment was in receipt of a shilling a month from a certain contractor. I should like to know where that shilling a month came from? It came out of the horses, it was saved out of the weight given to them.

(*To be continued.*)

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# Proceedings of Veterinary Medical Societies, &c.

## SOUTHERN COUNTIES VETERINARY MEDICAL ASSOCIATION.

A MEETING of this Association was held at the Bull Hotel, Rochester, on June 26th.

Amongst those present were Mr. H. Raymond, A.V.D. (President); Messrs. Martin, Rochester; A. C. Piesse, Redhill; J. F. Simpson, Maidenhead; and F. W. Wragg, J. Jarvis, W. Hunting, London; Dr. V. Bell, Rochester; T.

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Greaves, Manchester; F. Walters, A.V.D., J. Mills, A.V.D., W. Wheatley, Reading; Dr. G. Fleming, and Mr. E. A. Hollingham, London, Hon. Sec.

Certain correspondence was read, relating to the low fees offered by the Hants C.C. to their veterinary inspectors. A circular from Mr. Villar, the Hon. Sec. to the C.V.M.A, was also read. Discussion on these subjects was adjourned until the next meeting.

The PRESIDENT proposed Mr. W. A. Edgar, as a Fellow of the Association; this was seconded by the HON. SEC, and unanimously carried.

The HON. SEC. proposed Mr. J. B. Martin, of Rochester, as a Fellow; this was seconded by Mr. F. W. WRAGG, and unanimously carried.

Subsequently it was proposed by the PRESIDENT, and seconded by Mr. F. W. WRAGG, that Mr. F. Smith, of Aldershot, and Mr. Steel, Principal of the Bombay Veterinary College, should be elected Hon. Associates of the Association; this proposal was carried unanimously.

The AUDITORS made their report, and certain sums were voted to the Hon. Sec. for current expenses.

Dr. FLEMING then read his paper on "Variola in Animals and Man."*

*Discussion.*

The CHAIRMAN: The subject is now open for discussion, and we shall be very pleased to hear the remarks that any visitors may choose to make. I believe Dr. Bell is present; perhaps he will be kind enough to favour us with some remarks.

Dr. BELL: Mr. Chairman and gentlemen, I really have nothing to say, except to express the great pleasure with which I have listened to the very interesting paper which Dr. Fleming has read. The subject of Horse-pox, as throwing a light on Small-pox and Cow-pox as well, is really new, and I suppose from what we have heard it is a recent discovery that Horse-pox is as abundant as it is, and its producing such very mild symptoms. I do not quite remember whether Dr. Fleming, when speaking of it, said there was any other symptom by which there would be an absolute distinction made between the two kinds of Grease, excepting the absence of general symptoms in the one and their presence in the other. I think, too, that the point which Dr. Fleming made as to the absolute distinction between Syphilis in the horse and Horse-pox, as showing that probably there would be the same complete distinction between Cow-pox and Syphilis in the human being, is an important one, showing that those who are anxious, by a side wind, to throw out vaccination are not likely to get any foundation for their theories from fact. There was also another point which seemed to me to be of considerable importance and of great interest, the fact that however you get hold of Small-pox material and put it into other animals you cannot get it put into the mould of those animals; if you bring it back to the human species you get it as Small-pox again. The subject seems to have been handled so very completely and exhaustively by Dr. Fleming in his interesting paper, that I have nothing to add to what he said, because his knowledge far overlaps mine on the subject. I am very much indebted to the invitation which brought me hither, and I wanted just to state these few points in order that the discussion might proceed. As a visitor I am very much indebted to you for inviting me, and to Dr. Fleming for the very interesting paper which he has read to us.

Mr. GREAVES (of Manchester): Mr. President and gentlemen, I have listened with very great pleasure to the elaborate paper of Dr. Fleming, and I go away with knowledge that I did not possess on this important subject. At one time of my life no one dreaded the scourge of Small-pox more than I

* See the VETERINARY JOURNAL for August.

did, because my favourite brother died of Small-pox, and I saw him a few hours before he died; it was a sight I can never forget. It was never known how he got it, but it was conjectured that it was taken through the towels that had been at the washerwoman's, where it was known afterwards there was Small-pox in the house. In reference to blacksmiths becoming affected with breakings out, I have known numbers of blacksmiths at one time and another who had sore hands and little pustules produced by shoeing horses that had Grease. It was believed that they became inoculated. The Doctor has exhausted the subject, which will bear reflection. I hope I shall have an opportunity of seeing it in our journals, for I am sure we shall all improve ourselves by studying the subject placed before us as it has been.

Mr. HUNTING: I should like to ask a question or two. I am exactly in the same awkward predicament as the other speakers. Dr. Fleming has so entirely overlapped any knowledge I possess that it is difficult to say anything further, but, leaving altogether the subject of the transmissibility of one of the diseases of animals to man, I should like to make a few observations on the question of Horse-pox. It seems to me very strange that with the number of horses which are attended now by veterinary surgeons, and the number of young horses that come through the hands of men who hold large contracts, we do not see more evidence. I can quite understand that on a farm young horses may escape attention, but I hardly understand the very large number of young horses now passing through the army, or omnibus and tramway yards—I cannot understand so many of these horses going through and the very small number of Horse-pox cases that are detected—if the disease exists to any extent. After the experiments of the well-known European authorities, it would be impertinence on my part to say the disease did not exist. In my own practice, which has now existed for some years, I have only seen three cases which have answered the description of Horse-pox, cases that used to be described as Stomatitis, cases where you have an eruption on the edges of the lips and mouth. In no case have I ever seen among the horse-keepers any eruptions on the hands or arms that were traceable to disease of the horse, nor did these three cases that I saw, although they came from Scotland in a batch of thirty horses, spread to any of the others. They were all apparently unaffected when they arrived here. As to Grease, it seemed a most unfortunate thing that this name should be given to the Horse-pox, because Grease is so constantly applied to an ulcerating or vesicular condition of the heels of horses (certainly not of a communicable nature, and having nothing to do with any Variola) that one is very apt to get confused about the nature of the diseases; and yet some of the diseases, some of the conditions described as Grease, at any rate on the Continent, must be of a specific nature, because Dr. Fleming related more than one case where the matter was inoculated to a cow, and then to another cow, and from that cow to man, every case being effective, and every case producing clinical appearances of a Variolous eruption. It is remarkable, too, that Professor Bouley should have said that he had not noticed this disease until his attention was drawn to it by other people. And then when his attention was drawn to it, and when he found its similarity to other variolous affections, it is rather remarkable that even then he should have said that he only remembered the disease from time to time. It seems not to be very common on the Continent. I am extremely glad that I came here to-day, because I had very hazy notions about the variolous diseases, and I never yet heard the thing put so clearly as Dr. Fleming has done it. He has told us what we all knew before, that Variola existed in all domestic animals; but he has told me what I did not know before, that apparently Horse-pox and Cow-pox are so much alike, and are so interchangeable among the various animals that there is a possibility they may be

the same disease, but that neither of them can be confused at all with Small-pox. It is most important, too, that we understand something more about these diseases—the diseases that are transmissible from animals to men, and the diseases that are supposed to be. Practically, there will be a pretty close association between medical men and veterinary surgeons in the future under this new Infectious Diseases' Prevention Act, and we may be of great assistance to each other (hear, hear). It will be as well that we recognise these variolous diseases, and also that the medical men should not always recognise loss of hair or a little eruption on the teats as a disease which *must* be transmissible, and which *must* be the cause of disease in man, simply because they are unable to trace any other direct contamination. It seems a little far-fetched, a little hasty, in fact, for one or two medical officers of health lately to have adopted what I think is a very bad piece of logic, that because they failed to trace how the milk became infected from the human subject they had a right to assume the infection resulted from the animal that produced the milk. There are many reasons why men working about a dairy should disguise the existence of disease, even in their own families. There are many ways in which they themselves may carry it without knowing it. Inability to trace the disease from human contamination ought not to be a reason for arriving at a conclusion that it *must* be from the animal.

Mr. WALTERS: Mr. President and gentlemen, I have received a considerable amount of instruction from Dr. Fleming's very able paper. I may mention a case with which I had something to do, that occurred in Canada in either the year 1863 or 1864. It was the case of an outbreak of Horse-pox in two batteries of Artillery, one of which was under my charge. I noticed it particularly, because the disease assumed two or three different phases. In some cases we had only the vesicular eruption covering the buccal membrane and extending round to the angle of the jaw; in other cases it ran on to the pustular stage, in a few aggravated cases the ulcerated stage was reached. I wish more particularly to mention this outbreak, because it proved to me most effectually that although the disease was highly contagious it was not infectious. In my battery—or rather, I should say, the battery under my veterinary charge—I took the precaution of isolating the whole of the cases that occurred to the best of my ability, and the disease appeared to be very promptly stamped out. In the other battery of Artillery the cases were not isolated to any very great extent, and the consequence was that nearly the whole of the horses were laid up within a short time, but the whole disease appeared to me of such a benign nature, except in the few ulcerated cases I have mentioned, that it speedily yielded to a very simple treatment. Mr. Hunting mentioned just now his wonderment at our not seeing more cases of Horse-pox in the Army. Well, we do occasionally meet with cases amongst young horses, and in examining the ages of young horses we frequently come upon the symptoms remaining from vesicular eruption, and plainly marked in the mucous membrane of the mouth. I daresay most of us here have seen these symptoms from time to time, but you more particularly meet them in young horses from three to five years of age. I have no doubt, it being such a very benignant disease, that we often pass cases through our stables, and cases are often passed through the various companies' stables and not particularly noticed, although I am quite sure that the disease exists to a much greater extent than we give it credit for, very frequently escaping our notice. I often think if one paid a little more attention to the young stock when in the field and after a given time, say between two and three years, that we should see a good many more cases than we do at present.

Mr. HUNTING: There is one thing that might be made clear. I think I

must have misunderstood Dr. Fleming as to an experiment that he quoted. With Horse-pox matter there were sixty soldiers inoculated. First of all there were six soldiers inoculated, and then from these six there were sixty inoculated, only eight of them had not been vaccinated, and yet forty of them took well. This would suggest that their first vaccination had not been a very good one, or that there was not quite the immunity to be derived from the one disease after an attack of the other—that is—if I did not misunderstand Dr. Fleming.

The CHAIRMAN: Dr. Fleming will answer that later.

Mr. WALTERS: There is one thing I also omitted. I never remember a case through this outbreak that I speak of, or any subsequent cases, where the disease was transmitted to man.

Mr. J. B. MARTIN: I rejoice to think our friend, Dr. Bell, has assisted to-day, because I think we may be usefully associated in giving some reason for diseases, particularly when they arise from animals, or from the partaking of milk of diseased animals, such as Tuberculosis. We know Tuberculosis produces consumption in children. For the surgeon that, I think, is very important, and also where milk comes in close proximity to any disease it does absorb the germs, and thereby may communicate disease to a human subject. About four or five years ago, down at Canterbury we had a case, just before the Hendon case, of which there was so much said; I did not at the time attach so much importance to it as I did afterwards. In a whole district, where they partook of the milk, it produced febrile sore throat and constitutional disturbances. I went down and examined all the cases, all the food, and all the premises. Well, it was a scrupulously clean place, the water was a running stream, the cows were out in a field, and had a lodge there, and there was nothing to suggest that it came from any bad form of treatment or any want of sanitary arrangement. I have not the least doubt I saw these vesicles on the teats, but I did not attach that importance to them then that I have since, and I have not the least doubt that the Medical Officer of Health there wrote in the paper, and particularly pointed out that the milk came from these cows alone. Now, they were perfectly healthy, and there was no scarlet fever or anything there to account for this disease. To a medical man this is most important. If I had paid particular attention to the Hendon case I could have thrown some light on it. Forty years ago I used to collect this lymph for the doctors in our neighbourhood, to vaccinate the children with. It is forty years ago, so that I have had my attention directed to this, but I never knew at the time that this was the cause of this sore throat. I think it was Mr. Hunting who suggested about the vaccine, and the doctors fighting so much against it. I might just mention now—and perhaps Dr. Bell will say something upon it—I am at a loss to understand why people do not believe in vaccination, because in our young days we used to see about one in every three pitted with Small-pox where we see none now. Again, we read the statistics of our legislation in Ireland. I recollect many years ago that one year there were about two hundred fatal cases in Ireland. I think after the institution of the vaccination the numbers were reduced to a hundred; the next year down to forty, and the next year down to two. I think that is a conclusive proof of the utility of the vaccination, and its indemnifying the human subject against Small-pox. Of course, this has nothing much to do with the subject, but I think these are subjects it is necessary for us to discuss where we have medical men with us. I keep a great many horses, and have been mixed up with them, but I have never seen any cases of Variola. I did not recognise it. Of course, we know what Grease is, and I have seen sores about horses' mouths; but I have never recognised it enough to appreciate it, or to call it Small-pox or Variola.

Mr. J. F. SIMPSON: I am bound to say the paper of Dr. Fleming has really

opened my eyes and set me thinking. It is quite possible I may have seen cases of the Horse-pox which has been referred to, and failed to recognise them; but I cannot, during the twenty-five years I have been in practice, call to mind ever having seen a case in my own practice. I saw one case once, to which my attention was called, but not in my own practice; but as a fact, for the twenty-five years during which I have practised, I have either not been observant enough, or the cases have not come under my notice. With regard to the Grease of horses, I understand Dr. Fleming recognises two kinds of Grease. He refers to the material that should be obtained for inoculation, and says it is derived from a situation lower down than the ordinary seat of Grease—I think those were the Doctor's words. In replying to the various speakers, if he would kindly give me some little information upon that subject, I should be extremely obliged.

Mr. JARVIS: I may have seen cases of Horse-pox from time to time, but if so, I have passed them over. I certainly have not recognised one.

Mr. WRAGG: I have been in practice a number of years—nearly as many as my friend here on the right (Mr. Martin)—but I have failed to recognise this disease. I certainly cannot charge my memory with having seen anything like the pustular eruption on the side of the lips even, as has been described by Mr. Hunting.

The HON. SECRETARY: Mr. President, gentlemen, and Dr. Fleming, in your reply, sir, I should like to know whether my impressions are correct—that there is more than one form of Variola affecting the cow; whether the form of Variola that we know under the name of Cow-pox is the only form, or whether there is another form, which was touched upon by Mr. Martin just now. I presume the cases which Mr. Martin had to deal with were of a variolous nature. (Mr. MARTIN: Yes.)

I have had a great deal to do with cattle practice, and I occasionally meet with eruptive diseases affecting the udders of cows, which also cause an eruption on other parts of the body. The eruption was not confined to the udder. In cases of Cow-pox we find that the eruption is confined to the teats and to the udder, but in those cases which I have noticed, which I think are similar to those spoken of by Mr. Martin, the eruption has appeared in patches in other parts of the body. Beyond the treatment required after the vesicles have broken, it appears to be a very benign disease, and it has not, to my knowledge, been followed or accompanied by any disease amongst the attendants, nor, as far as I could ascertain, amongst the inhabitants of the locality.

Mr. MULVEY: Like most of the speakers here, I have not noted any particular cases of this disease, but it has just occurred to me that it might be interesting for me to state that, some few years ago, a number of ponies were attacked with a disease exactly similar to that Dr. Fleming has described, and which I myself, at that time, really recognised and put down as an attack of Horse-pox. There were the eruptions running through the various stages in the buccal membranes, the mouth and the lips. The disease was of a very benign character, and passed off in the course of nine or ten days, and there was very little constitutional disturbance. I mention this as somewhat confirming what Dr. Fleming has said.

Dr. FLEMING: Mr. President and gentlemen, I rise to reply to some questions which have been put, and also to make some remarks, supplementary to those I made in my paper. In the first place, you will allow me to express my pleasure to find that the subject is a new one comparatively. I do not think myself that it is altogether new, but unless one's attention is directed very often to such things, one is apt to pass them by without observing them. Such would have been my own case in the outbreak of Horse-pox which I witnessed, and which to me was most interesting. For a great number of years I made the subject of variolous diseases a special study, and especially

with regard to the identity of Small-pox and Cow-pox, a subject which, as I have said, had been dealt with by medical men as if it were threshed out, that is, that Small-pox and Cow-pox were one and the same disease, that by one transmission of Small-pox through a cow the Cow-pox was produced, and that the Cow-pox was never altered again, never taken back to its own soil and transmitted and re-transmitted from generation to generation of men, and remains Cow-pox. It struck me as such an anomalous notion that I thought that I would study it thoroughly.

When stationed at Aldershot, I lived near a large dairy of cattle, and the farmer, who was a friend, allowed me to experiment upon some of his cattle; I did not tell him what I was really doing. Being acquainted with a physician at one of the London hospitals, I got some Small-pox virus, and I inoculated cow after cow. Sometimes I got such a large supply of virus that I was able almost to pour it into the inoculation; but with Vaccine lymph I could produce the Cow-pox at once, which plainly indicated to me that the two diseases were not the same, though in some features they might resemble each other; and that though they belonged to the same family, the diseases were entirely dissimilar with regard to their transmission. I then came to the conclusion that Small-pox could not be communicated to the cow, and that any person who tried to vaccinate from the vesicle formed might produce very disastrous results; he would simply transfer the Small-pox back to the human species. Then I read about these outbreaks in France, especially Bouley's work. When stationed at Windsor we got a number of black horses up from Yorkshire, and a day after their arrival the farrier-major called my attention to one or two of them having an eruption about the lips and mouth; they slavered a good deal and could not eat. It struck me at once I had a case of Horse-pox. I may have seen cases before, but I was delighted. There were vesicles around the mouth, sometimes running up the face, inside the lips, on the tongue, under the tongue; the glands were tumefied, and there was a certain amount of fever; but the most noticeable feature was the difficulty the animal had in eating. I put the horses into loose boxes and watched them. Some days afterwards a case was reported in one of the troop-stables in a far distant corner of the barracks. There was another case of Horse-pox. How did it get there? I said, "Here is a most infectious malady;" it was a very well-marked case indeed. I began to enquire, and after a great deal of trouble I discovered that this troop-horse was a horse dismissed from the ranks, and the soldier, having to go on parade, did not know where to find a bridoon, and took one of these young horses' bridoons. It shows how very active the contagion is. There was an officer's horse in another loose box, and the horse had cracked heels. It had been standing out in the open and had inflamed the skin of the pastern, and my attention was drawn to him one morning. The skin in the heels was very much inflamed indeed, and there were vesicles on the skin. I then discovered that the man who attended this officer's horse had borrowed one of the sponges from the infirmary box, used to sponge the mouths of the animals. This horse had been affected in the heels by the sponge which was used to dress the mouths. I had operated on a horse some days before, and going into the box one morning I found his hind legs enormously swollen. I was afraid it was a case of Septicæmia; however, in the course of a day or so, there was an eruption. This was a similar case. A sponge had been used to sponge the discharge from this other horse, and so I had abundant evidence, not only of the contagiousness of the malady, but also of the different forms it may assume. The horse which had had the operation performed upon it had not only the eruption inside the face, but over the body to a large extent; so that there could be no doubt whatever about it. But the most striking fact, to my mind, was that presented by the farrier-major

when he came to me one morning and showed me his hand; there was a large vesicle on the back of the first finger, and an extensive inflammation of the skin, and it was very much swollen above the wrist. The man himself was feverish, and he was sent to the hospital. Our Regimental Surgeon was absent on leave at the time, and the Surgeon of the Foot Guards, who saw his finger, said it was Syphilis. He said his hand must have been in some improper place, and it must have been syphilised. However, our own surgeon came back soon afterwards (he is now in the First Life Guards) saw this man's finger, and said it was a typical case of vaccination. The man was in the hospital for some time. That shows you at once the opportunity which I had, on a very small scale certainly, but entirely on my own observation, of seeing the disease, both in the horse and in man. With regard to the Horse-pox and Horse-syphilis, there can be no doubt about it that no one should make the mistake. Horse-syphilis is a malady with which you are not acquainted in this country; but they are having some experience of it in the United States of America, through French horses having been imported, and it seems they were infected before they left France, and they infected a great number of horses in the United States. This Horse-syphilis is a chronic disease. The contagion is conveyed during the contact of the sexes, and it is pustular and vesicular chiefly about the generative organs; but, in a short time, it becomes constitutional, and drags its course along for months sometimes. The animals become weak, and at last die in a state of marasmus. It has been very exhaustively studied by the Director of the Buda-Pesth Schools, and his investigation goes to show it is very closely allied to human Syphilis. There are no comparisons between Horse-pox and Horse-syphilis. If anyone ever saw Horse-pox he would never mistake it again; it is vesicular in the first place, and the vesicles are conical. They are white, pearl-coloured, and they are either discrete or confluent. When Horse-pox affects the heels it resembles very much the ordinary disease called "Grease"; in fact any disease of the horse's heels is called by the grooms and farriers "Grease." It is the rupture of the vesicles which causes the discharge, and that has caused the grooms and other people to give the name of "Grease" to it. This disease of the skin of the heels is vesicular, and there is not the faintest doubt that farriers are often infected, but do not say anything about it. I myself can call to mind several cases where shoers have been infected through shoeing horses. The Cow-pox is extremely closely allied to Horse-pox, although the clinical features of the disease are so very different. Cow-pox you all are familiar with, the large vesicle becoming in time a crust, with the depression in the centre; the large dark brown crust marks it at once. There is no doubt that there are other vesicular diseases of the cow, but I am not acquainted with them. I fancy that if the disease is vesicular, and shows the form which we are accustomed to believe is Cow-pox, that there is no doubt about the presence of Cow-pox. The appearance of Cow-pox is extremely characteristic. It is a mistake to assume that the eruption of Cow-pox is confined to the teats or the udder, or even confined to the cow; it has been seen on the bull, and it will be seen in any other part of the cow's body to which the virus is conveyed. With regard to the soldiers in France who were inoculated, lymph was collected from the pustules with the greatest care, that is from the pustules of the mare, and seven young soldiers of the 10th Hussars were inoculated. On the sixth day six men showed a decided inoculation. From four soldiers lymph was taken. With this sixty-four men were inoculated, eight of whom had never been vaccinated. In forty of these the results were favourable—sixty per cent. had been successful. With regard to the prevalence of Horse-pox, I fancy that it is a great deal more so than we imagine. Only the other day one or two young horses were received as in-patients at the

Royal Veterinary College. Professor Axe found they were affected with Horse-pox, and he inoculated from them, and produced the most marked Cow-pox you can imagine. Although the eruption in and around these animals' mouths was quite different from Cow-pox, yet the virus produced Cow-pox. Whether the horse gets its Variola from the cow, or the cow from the horse, I do not know. I am inclined to consider they are entirely independent diseases, but so very closely allied that the virus of one would produce symptoms almost identical with those in the other. There is only one form of Variola in the horse, there cannot be two. I do not know of any animal which has two. The prevalence of Horse-pox in this country, now that attention is directed to it, will be found to be greater than is imagined. The French veterinary journals very frequently describe outbreaks of Horse-pox, and a professor in the Lyons Veterinary School has studied the disease very carefully, and finds it now very prevalent about Lyons. Professor Trasbot believes that Strangles in the horse is Horse-pox. You will find very frequently indeed that horses affected with what is supposed to be Strangles have an eruption about the mouth, the eruption frequently running round the cheeks. I am inclined myself to believe that it is a form of Horse-pox; but when the vesicles extend to the mucous membrane, they produce suppuration; therefore you have, as in Strangles, a muco-purulent discharge from the nostrils with tumefaction of the glands. My object was to draw attention to the fact that we have in this country two kinds of Variola, these affecting the horse and the cow, and that both forms are intimately connected with the health of our population. I was also extremely anxious to remove the erroneous impression which prevails, especially amongst medical men, to the effect that Small-pox and Cow-pox are one disease; they are not. I have often had conversations with my old friend Mr. Ceeley, and I think towards the end of his days he began to see his mistake. I fancy these gentlemen who have been successful in producing Cow-pox from Small-pox have been working at the same time with vaccine lymph. Certainly the most eminent experimentalists in Europe—those of France—have tried to produce Cox-pox from Small-pox, and have utterly failed. The virus in the pustule may be modified so that it will produce a localised form of Small-pox in man. It is perfectly certain that the two diseases are entirely dissimilar and entirely independent. Small-pox introduced into the cow remains Small-pox; Cow-pox introduced into man remains Cow-pox. It is also a curious fact that the disease which most closely resembles Small-pox in man—that is Sheep-pox—is one which cannot be protected against, there is no protection. Inoculation with human Small-pox virus will not protect the sheep from Sheep-pox, and neither will the virus of Cow-pox. It is a curious thing why our own species should be the only one which can be protected by the virus of a similar disease in animals, but nevertheless that is the fact. I trust that this erroneous notion that Cow-pox is only Small-pox modified by transmission through the cow will not prevail. One instance occurred in India many years ago. A medical officer who was at a station there, in charge of a very large district—he was not an Army surgeon, but had charge of a very large district—his vaccine lymph failed. He remembered the discussion which had gone on at the beginning of the century with regard to the production of vaccine lymph by inoculation, and he tried this. He inoculated one or two calves with Small-pox virus, and then he inoculated children and people on a very large scale, and produced a most alarming outbreak of Small-pox in that district. There was a very distinguished American, who did the same thing in 1861, in the States, and produced a very serious outbreak of Small-pox which spread in his district, so that the danger of the error is apparent. Not only that, if it were merely a matter of doctrine I think that errors in medicine should be abolished as much as we can abolish them, and therefore if we get rid of the

idea that Small-pox can be converted into Cow-pox through one transmission, it will be a great deal gained. We are all anxious to have our medical theories on a sound basis. I am sure that the medical profession will not think it wrong of us if we dissent from the notions which are sometimes entertained with regard to animal diseases. I should like very much indeed that the veterinary profession should stand in the closest relation possible to the medical profession, and in these diseases which are transmissible from animals to man or from man to animals we have very good grounds on which to work together, while the success of medicine to a very large extent depends upon experimental pathology. The knowledge of veterinary surgeons can be utilised to a large extent by medical men, and I trust that those bodies who have it in their power to introduce experiments and to carry them out will take up this question of Variola in animals, and work it out for us. There are many points which are very obscure, and I am sure the obscurity should no longer prevail. We have ample means in our laboratories to study these diseases under every aspect, and it is rather a reflection upon us that we do not avail ourselves of those facilities and clear up these doubtful points which still remain with regard to them.

The CHAIRMAN: It is my pleasant duty to move that a vote of thanks be rendered to Dr. Fleming for the paper he has been good enough to read to us. We might have wished there was a larger meeting to receive that paper, but I think we are all agreed you could not have had a better quality of meeting.

Mr. WRAGG in seconding said: Dr. Fleming has been connected with this Association since its commencement. My friend, Martin, certainly was the father, but I think Dr. Fleming was his eldest child. I have met him at this Association many times, and it gives me very great pleasure to meet him here to-day, and much more to have heard the very interesting paper which he has given us.

The resolution was carried unanimously.

Dr. FLEMING: I thank you very much indeed for the reception you have given me. It has afforded me very much pleasure to have come here to-day. I think I remember the birth of this Society; I remember its infancy, and its growth into adolescence. I am glad to find it is existing and permanently thriving. It is a difficult thing to get a large attendance in the provinces, but, nevertheless, so long as half-a-dozen of us meet together it will be for good.

The CHAIRMAN: There is one more subject I have to bring before you, gentlemen, and it is where shall we hold our next meeting, which is due to be held on the last Thursday in September. There is Brighton and there is Southampton, and I think we ought to meet once in each county, and therefore it comes to their turn. There is such an accumulation of material that we may have to hold a special meeting somewhere, and in that case it would be held, I think, in Aldershot or some central place. Will you kindly arrange and decide which place you would prefer?

Mr. SIMPSON: What do we consider the Southern Counties?

The CHAIRMAN: I consider Kent, Sussex, Hants, and Surrey.

Mr. SIMPSON proposed and Mr. WRAGG seconded, that the next place of meeting should be Brighton.

This resolution on being put to the meeting was unanimously agreed to, and the proceedings then terminated.

## THE CENTRAL VETERINARY MEDICAL SOCIETY.

AN Ordinary General Meeting of this Society was held at the First Avenue Hotel, Holborn, on Thursday, July 3rd.

In the unavoidable absence of the President, Mr. F. Raymond was voted to the chair.

The Fellows present were Messrs. Butters, Gostling, Gregory, Hurndall, Kendall, Oatway, Prudames, Reddish, Rogerson, Rowe, Stanley, Willis, and the Hon. Sec. Some gentlemen also attended as visitors.

The minutes of the previous meeting were read, and after an alteration, suggested by Mr. Hurndall, were confirmed.

Correspondence was then read from Professor Walley, Mr. Slocock, Mr. Fitzwilliam Wright, and from the Hon. Secs. of the Royal Counties, the Midland Counties, and the North of England Veterinary Medical Associations, also a letter from Mr. McKenny, of the Veterinary Medical Association of Ireland, asking for thirty-six copies of the President's paper, "A New Charter—is it Needed?" On the motion of Mr. RAYMOND, seconded by Mr. ROWE, it was agreed to accede to this request.

The HON. SECRETARY drew the attention of the Meeting to the forthcoming International Congress of Hygiene, which is to be held in London next year.

Mr. HURNDALL proposed, and Mr. PRUDAMES seconded, and it was carried, "That the Hon. Secretary bring the matter before the next meeting of the Council to determine if this Society should subscribe to and be represented at the Congress."

Mr. P. McOnie, M.R.C.V.S., of Holloway, London, was unanimously elected a Fellow of the Society, and Mr. W. F. Barrett, of New Cross, was nominated for Fellowship.

Mr. ARTHUR ROGERSON submitted to the meeting os coronæ and the pedal bone of the near hind leg of a valuable cart-horse; the animal had got its foot over the halter-chain, and had so injured the heel that it had to be destroyed; it was, however, kept under treatment for about two months. Mr. Rogerson invited the attention of the meeting to two points: firstly, to the diseased condition of the bones; and, secondly, to the manner of securing horses in stables, more particularly in the stables of large town companies where bails were used. It was within his own experience that considerable loss occurred yearly from such accidents as this animal had met with, and also from horses getting loose; he thought it was a practical question which they might well consider. As regarded the morbid specimen he knew that the horse previous to its accident was free from disease of this pastern, but, although it was destroyed within eight weeks after receiving the injury, there was a large amount of exostosis on the external surface of the bones, and the articular cartilage and laminæ of the extremities, which entered into the formation of the pedal joint, were almost entirely removed, and there was also loss of a large amount of the cancellated tissue of these bones.

The specimen excited considerable discussion, in which Messrs. Prudames, Hurndall, Reddish, Rowe, Butters, the Chairman, and Hon. Secretary took part; the methods of securing horses in stables were also referred to by some of the speakers.

On the motion of Mr. RAYMOND, seconded by Mr. ROWE, a vote of thanks was accorded Mr. Rogerson for introducing the specimen and discussion.

### MR. HUNTING'S PAPER.

In re-opening the discussion on the President's paper, "A New Charter—Is it Needed?" Mr. RAYMOND said: "There is no doubt, gentlemen, that our Charters require overhauling, and, according to the views of many, certain alterations should also be made in them. In the good old days, when the bulk of the profession ceased to take an interest in these matters, as soon as they were admitted as members, the old Charters were not much objected to, in fact, very few people troubled themselves about them at all, but now that there is an awakening—now that practitioners are becoming alive to the fact that professional politics may exercise a more or less direct influence

upon the status, and even upon the income, of individual members a great change is gradually taking place.

Members seem to think that the old Charters are no longer suited to the times we live in; in a word, some parts of them are found to be absurd, and others are said to be unfair.

The Clauses seem to me to be rather ridiculous which deal with the elections of Vice-Presidents? One would imagine that this honour would be conferred on the most experienced men on the Council, such as the President elect, the past President, and so on; but, strange to say, precisely the men who have to learn their work, who have little or no knowledge of the traditions and procedure of the Council are elected to take the President's chair in his absence. Then occurs another absurdity; for as soon as a Vice-President has gained some idea of his business, he becomes a member, or is shelved altogether, and so the game goes on. Gentlemen, the Vice-Presidents, though able and zealous as ordinary members, are exactly those men who are least fitted to take the President's chair.

It appears to me that the system of electing Vice-Presidents, besides being absurd, is at variance with all usual procedure in elections of this kind; surely they should be selected from the members of the Council, and all the members of Council should be elected by the profession. If all men had to submit to election by the profession, they would have to do something more for its welfare, than merely to canvass the members of the Council. On the other hand, the six extra seats would offer more encouragement to the workers for the general good, because they would know there would be more chances of obtaining honours for their pains.

As regards the Ninth Clause, I must say that I was in favour of it at one time as it stands, because I had just got my extra diploma, because I believed that we should get the cream of the profession to join us, and because I imagined that the opposition to the clause was fictitious; since then, and for the last four years, I have mixed more intimately with the profession and discussed the subject, and have reason to modify my views. We have heard many reasons given why this clause should be altered or cancelled, but there are two which carry a good deal of weight with me.

The chief reason is that the Council, by an unfortunate oversight, deprived the existing members of their existing rights. It is, no doubt, true, that a sort of plébescite was held, but I am informed that comparatively few people voted. If that is true, there is reason for re-opening the question. Another reason is, that I have been told that very good men are afraid to come forward, because if they fail, their opponents, instead of admiring their courage, publish their rejection, so as to get hold of their clients. I must tell you candidly, I think a man who tries for the Fellowship, whether he succeeds or not, shows infinitely more pluck than a man who does not. I do not think the Fellows would suffer very much if the Ninth Clause were modified or abrogated altogether, because the examination might then be made more stringent. At any rate, in view of the strong feeling which animates the body of the profession upon the subject, it seems to me it would be a graceful and politic act on the part of the Fellows and the Council if they consented to reconsider the matter.

As regards the dual appointments, I will quote from a paper by Sir M. Mackenzie in a recent edition of the *Fortnightly Review*, because it shows what is thought in the surgical profession, and what might happen in ours. He says: "The plan of keeping the examinerships 'in the family' is an abuse of a very bad kind; it encourages jobbery and tends to lower the standard of examinations by placing examiners beyond the reach of censure or even supervision. It further prevents the formation of an independent council, for those who are looking for examinerships dare not express opinions

contrary to those of the leaders on the council. In all properly constituted corporations, the members of the governing body are disqualified from being elected to lucrative offices in their own gift. The members of the Senate of the University of London cannot become candidates for examinerships, and it is a customary rule in corporations, and even in the vestries, that offices of emolument cannot be distributed by the members among each other. The system of having paid examiners who are themselves directors of the institution was years ago felt to be a very crying evil."

This language is decidedly strong, but certainly points to some of the dangers of dual appointments. My own view is that the Council should be a court of appeal to which principals, students, and examiners can go for rectification of any injustice they may think they suffer from. As the matter stands at present, with eleven members of the Board of Examiners on the Council, who in such cases would be either prosecutors or defendants, the decisions of the Council are always liable to attack on the score of bias. You will recollect that a few years ago some rowdy demonstrations took place at Glasgow and Edinburgh, and some of the examiners were mobbed; now, it has occurred to me that had the parties implicated had a judicial Court of Appeal to go to, perhaps these most disgraceful proceedings might never have occurred.

As regards the examiners, I consider that they should always be Fellows, unless the Fellowship is to be considered an utter farce. A man need not be a Fellow to manage the political business of the profession, any more than an M.P. need be a Master of Arts, but certainly an examiner ought to give some tangible proof of his general professional competency, and that end is best gained by the Fellowship, particularly if it is made more stringent. I also think that an examination in operations should be added to the Fellowship Exam.

I am a supporter of Mr. Kidd's idea, that a certain number of ex-officio members might be added to the Council; they would be the veterinary advisers to the Board of Agriculture, the Principal Veterinary Surgeon of the Army, and the Chairman of the Board of Examiners. These gentlemen are bound to be good men, or they would never have obtained their position, and it is only fair that the examiners should have an official mouthpiece at the Board.

The subject of professional etiquette has also been broached by Mr. Kidd, so perhaps a few words may be said upon this subject; but I would suggest that the Council would have to solve the problem of overcrowding before that of professional etiquette, because unfair and unprofessional competition is intimately connected with overcrowding. We cannot object to a man who carries on two or more businesses at the same time, providing he keeps his professional employment apart from the others; but I do not think it wise that he should use his initials M.R.C.V.S. with other money matters. I do not think that those gentlemen who advertise in lay newspapers are well advised from a professional point of view, neither do I consider it desirable that prescriptions should be given in agricultural journals. There are a few other points which may occur to you, but I have spoken at sufficient length, and will now resume my seat.

Mr. Rowe said the method of electing their Vice-Presidents was a standing abuse. Men were elected who stood no chance by an honest ballot. As to the Ninth Clause, he had never taken advantage of the Fellowship Degree, and never meant to; and for this reason, that he thought by the introduction of this Ninth Clause they were robbed of their privileges; also he did not think the Fellows who had become Fellows by examination had advanced the profession by any means. He had known Fellows charge as low as 1s. 6d. for a visit. Again, he objected to the large increase of the collegiate

staff on the Council. He had protested against this some years ago, and had paid for it in the shape of a great deal of abuse, but he supposed the condition was now as bad as ever it was. In concluding, Mr. Rowe spoke against the dual appointment.

Mr. ROGERSON said he did not wish to offer any opinion one way or the other as to the Ninth Clause, but he thought as their last Charter was of so recent a date, there might possibly be a difficulty in getting an abrogation of this clause. Many of the gentlemen who were agitating against it now were alive when this Charter was granted with their full knowledge and consent, and that fact would probably weigh with the Privy Council.

Mr. HURNDALL pointed out that when the last Charter was granted many members were not aware of its provisions. Mr. Hunting had brought out this fact very clearly in his paper. No doubt when this Charter was passed there was a good deal of apathy in the profession with regard to it, and Mr. Hunting gave good reasons why such apathy then existed. He mentioned this, as he should not like Mr. Rogerson's views to go forth to the world as correct. Mr. Hunting showed most conclusively that a small minority of the profession only knew anything about the Charter, as the proper means were not taken to inform them. It was, as it were, brought in by stealth. Mr. Hunting had shown that as clearly as possible, and he must therefore most emphatically contradict Mr. Rogerson's statement on that point.

Mr. BUTTERS said Mr. Hunting had put everything so clearly in his essay that he had left very little opportunity for them to say anything. He quite agreed a new Charter was necessary to remedy some of the abuses. Charters were obtained without much trouble in the past, and therefore perhaps one could be easily obtained now.

On the invitation of the Chairman, Mr. Villar said it seemed to him that the opinion of the Society was divided on this subject to some extent, and as an officer of the Society he thought he ought not to offer any opinion, although he felt very strongly upon the question.

Mr. HURNDALL moved, "That the advisability of distributing to every member of the profession copies of Mr. Hunting's paper, entitled 'A New Charter, is it Needed?' as read before the Central Veterinary Medical Society, on June 5th, 1890, be referred to the Council for their consideration and determination."

Mr. BUTTERS seconded this motion.

Mr. ROGERSON did not think it fair that this Society should bear such an expense, and moved an amendment which was ruled out of order by the Chairman, as financial matters were for the consideration of the Council only. Mr. Hurndall's motion on being put to the meeting was lost by one vote.

Mr. ROWE proposed, and Mr. ROGERSON seconded, a vote of thanks to the Essayist, which was carried unanimously. A vote of thanks was also accorded the Chairman, and Mr. RAYMOND having replied, the meeting was brought to a close.

SIDNEY VILLAR, *Hon. Sec.*

## ROYAL COUNTIES VETERINARY MEDICAL ASSOCIATION.

A MEETING of the above Association was held at the "Clarendon" Hotel, Oxford, on 25th July, 1890, A. Wheatley, Esq., President, in the chair. There was a large attendance of members, together with a few visitors. Mr. F. W. Willett, M.R.C.V.S., of Staines, was unanimously elected a member of the Association.

The following report of the Conference of the Presidents and Secretaries of the various Associations, held on the 5th May last, was read. The Conference was held to determine whether it was possible to have dates fixed by

mutual consent for meetings of the different Associations. Mr. Albert Wheatley, President of this Association, occupied the Chair.

The following Associations were represented, viz, The "Central," "Midland Counties," "Border Counties," "Lancashire," "Yorkshire," and the "Southern Counties." Regret was expressed that other Associations were not represented, especially the "North of England," as it was in a great measure to meet the wishes of that Association that the Royal Counties had arranged the Conference. After discussion the following suggested dates were approved by the Conference :—

| Name. | President. | Hon. Sec. | Present dates of Meetings. | Suggested dates. |
|---|---|---|---|---|
| Border Counties ... | T. Greaves ... | J. Armstrong ... | Feb., May, Aug., and Nov. | First Friday of these months. |
| Central ... ... | W. Hunting ... | Sidney Villar .. | First Thurs. monthly, except Aug. and Sep | As at present. |
| Eastern Counties... | J. E. Kitchin ... | R. S. Barcham | Feb. and July ... .. | Second Wednes., Feb. and July. |
| Lancashire ... ... | W. A. Taylor ... | Peter Pike .. | Second Wed. Mar., June, Sept. and Dec. | As at present. |
| Lincolnshire ... | F. L. Gooch ... | J. Smith ..... | Feb., June, and Oct.... | Second Thursday, Feb., June & Oct. |
| Midland Counties... | F. W. Wragg .. | John Malcolm... | Second Friday, Feb., May, Aug and Nov. | As at present. |
| North of England... | J. W. T. Moore | W. A. Hancock | Last Friday, Feb., May, Aug. Nov. | Third Frid., Feb., May, Aug., & Nov. |
| Royal Counties ... | A. Wheatley .. | H. Kidd .. | Last Friday, Feb, July, and Nov. | Last Friday, Feb., June, and Nov. |
| South Durham and North Yorkshire | J. Nettleton .. | W. Awde .. | First Frid., Mar, June, Sept. and Dec. | |
| Southern Counties | F. Raymond ... | E. Hollingham | Last Thurs. Mar., June and Sep. | As at present. |
| Western Counties | J. P. Heath .. | W. Penhale ... | Third Thurs. Mar. and Sept. | As at present. |
| Yorkshire ... ... | A. W. Briggs... | W.F.Greenhalgh | Last Friday, Jan., April, July and Oct. | As at present. |

The next business was to consider, by request of Central Veterinary Medical Association, certain resolutions which were passed by that Association in March last :—

I. "That this meeting, whilst recognising the possibility of animals other than the dog becoming the media of spreading Rabies, is of opinion that in a large majority of cases, if not the whole, the development of this malady is due to the dog." This was approved of by 16 to 2.

II. "That from abundant evidence gathered in our profession, this meeting finds that effective muzzling is the most reliable method of stamping out the disease." This was approved by 15 to 1.

III. "It is advisable that all imported dogs be subjected to a quarantine of six months." This was approved by 14 to 3.

IV. "That partial or local muzzling of dogs for the prevention or eradication of Rabies is inadequate." This was unanimously approved.

It was agreed to defer consideration of the question, "A New Charter, is it needed?"

Professor AXE, of the Royal Veterinary College, gave a lecture on

THE EXAMINATION OF HORSES AS TO SOUNDNESS—ITS DIFFICULTIES AND RESPONSIBILITIES.

He said : The subject to which I wish to direct your attention to-day is one of the highest importance to all interested in horses, and more especially to us as veterinary surgeons.

The examination of horses as to soundness is a function in which every one of us shares to a greater or less extent, and it must be admitted to have been hitherto the most remunerative branch of our practice. Like many other callings, it is one demanding for its efficient performance a large and varied experience of horses in general, as well as a full share of that higher technical training which scholastic study affords. The responsibility which attaches to this department of our work is daily becoming more and more recognised and insisted upon by those in whose interests we act. The marked and rapid increase in the quality of our horse stock, arising out of improved methods of breeding and a more painstaking system of rearing, has very naturally and happily led to an increase in their value, and it is not overstating the case when I say that the best specimens of our horses have doubled in value in the past twenty years; and more than this, there are ten customers for a £500 horse to-day where only one could be found a quarter of a century ago. People are in the habit of saying that "good horses are scarce." If by that they mean that they are less numerous than they were at the time I have referred to, I have no hesitation in affirming the contrary. I believe that good horses of every description were never so plentiful, and at no time was there such a market for them as now. With an increase in value there has very naturally arisen a desire on the part of purchasers to guard themselves against imposition, and the many possible disappointments and losses which attach to the purchase of horses. It is mainly on this account that the services of the veterinary surgeon are now so much more in request than they were formerly, but there is also a decided tendency on the part of dealers to evade the responsibilities of "warranty," and to throw the onus of proof as to the soundness of horses on the veterinary expert. No one, of course, can complain of this wholesome departure from a pernicious system of sale, which has invested horses and horse-dealing with such infamous repute and exposed so glaringly to public gaze the worst side of our professional character. I take it as a high compliment to the veterinary profession that purchasers so readily accept this new state of things. By so doing they have declared confidence in the integrity and skill of our craft, and it is a matter for congratulation that, whereas our law courts were formerly besieged by litigants seeking redress on account of real or supposed misrepresentation, such cases are now, comparatively speaking, rare. I cannot help but feel that this more satisfactory state of relations between horse dealers and horse-buyers is, in a large measure, due to the services rendered by our profession in the exercise of their judgment as to soundness, and upon which purchasers are now content to rely without any guarantee from the vendor. It cannot, however, be overlooked as previously observed, that this increase of public confidence and great advance in the price of horses, has brought with it a corresponding increase in our responsibilities. Circumstances which have recently occurred, in connection with several members of our profession, have clearly demonstrated this All of you are more or less familiar with the fact that serious claims have recently been set up against veterinary surgeons on account of losses sustained by reason, as it has been alleged, of their negligence or want of skill in the examination of horses as to soundness. In two or three instances large sums of money have been recovered, either by costly action at law or as the result of adverse arbitration. A deep sense of insecurity in regard to this branch of our duties has in consequence been engendered throughout the profession, and it is with a view to afford an opportunity for an expression of opinion on this subject that I bring the matter before you to-day. No one who has had any experience in the examination of horses as to soundness can have failed to recognise the onerous and trying circumstances under which we are called upon to exercise this branch of our calling. In no other profession with which I am acquainted is there a duty so

peculiar in its nature, and precarious in its consequences, as that of deciding upon the soundness or unsoundness of horses. It is not with an inanimate machine, whose every part may be disconnected, scrutinised, and tested, that we have to deal, but a living, complex, ever-changing organism, exposed to and influenced by ever-changing conditions of environment and purpose, and in a too large measure also by the abuses of human vice and folly.

In proceeding to deal with this question, it is desirable at the outset to consider the nature of the duty involved, viz., the examination of horses as to soundness; and in doing so we must first, I think, repeat the question so often asked—What is soundness?

Chief Justice Best, in the case of Best *v.* Osborne, laid it down that "sound" meant "perfect." To this definition I take no exception in the abstract, but if it is the standard to be recognised in dealing with horses, then it will be obvious at once that we, whose examination is necessarily brief and limited for the most part to the superficies of the body and to locomotion, can no longer hope to speak with authority on the subject. The vital machinery of the animal organism is hidden away from us, and, save so far as refers to objective physiological signs, cannot be scrutinised. I say, therefore, that this definition of soundness imposes on us a duty and responsibility which we are not warranted in accepting. We cannot reasonably certify to the physical perfection of an animal whose essential parts we have insufficient means of examining. Further, such a definition is so exclusive in its application to horses as practically to dispose of the necessity for any examination at all, as such a thing as perfection, even in the accessible parts of a horse at the working period of life, is quite phenomenal.

Mr. Baron Parke (Coates *v.* Stephens), who may be regarded as a ruling authority, said that the word "sound" means what it expresses, namely, that the animal is "sound," and free from disease at the time he is warranted "sound"; but the Baron violates and demolishes his own definition immediately when he admits, as he does, that disease is not inconsistent with soundness, for he says, "If, indeed, the disease were not of a nature to impede the natural usefulness of the animal for the purposes for which he is used . . . . it would not amount to an unsoundness."

Here, then, it is admitted that there are certain forms of disease which may be reconciled with the state we term soundness; but the Baron only adduces one, and that is governed by the position which it occupies, and not by the nature and extent of the malady itself, as "if a horse had a pimple on his skin it would not amount to unsoundness; but if such a thing as a pimple were on some part of the body where it might have the effect of impeding the natural usefulness of the animal, it would constitute unsoundness."

Mr. Baron Alderson agrees substantially with Baron Parke. He says, "If a horse is purchased to be used in a given way, the word 'sound' means that the animal is useful for that purpose; and unsound means that he at the time is affected with something which will have the effect of impeding that use."

According to these two eminent authorities, the essence of soundness is the capability of an animal to perform (without let or hindrance) such work as it is best fitted to perform by virtue of its size, build, and general character.

This discrepancy in the literal and legal sense of soundness, and the utter unfitness of either to the requirements of a rational and consistent system of horse inspection and certification, needs at this time our serious consideration. Not only do difficulties meet us on the threshold of this branch of professional practice, but they continue at every stage to render the duty of

examination both onerous and precarious. The subjects with which we are called upon to deal, although presenting a *general* uniformity of conformation, are, nevertheless, widely divergent in those matters of detail to which our attention is specially directed in the course of an examination. It will be accepted as a truism that no two horses are alike in their physical proportions, and the same may be said in a large measure with regard to homologous parts of the same animal; and when the question is viewed from an anatomical standpoint, the reason of this latter discrepancy becomes at once apparent, inasmuch as no two bones in the body are exactly alike, and in many instances the difference is considerable and striking. Hence arise those strange anomalies in limbs and joints about which veterinary surgeons are so prone to differ in matter of opinion, as to the presence or absence of disease. One example will suffice to illustrate what I mean, but this might be multiplied manifold. Nothing, perhaps, fills the veterinary surgeon with so much doubt, or involves him in greater difficulty, than the inspection of horses' hocks. This part of the animal, as with many others, presents such variety in its normal conformation, and in some instances such unusual developments of its bony constituents as to render a differential diagnosis between health and disease a matter of the greatest uncertainty, even in the hands of our greatest experts. Rough or coarse hocks, as they are termed, by which we mean joints characterised by great size, and lumpy or irregular surfaces, are frequently the subject of diverse opinion in the ranks of our profession; and no one will say that such conditions do not often afford reasonable ground for the differences which so frequently arise. Indeed, we must admit that it is, in some instances, impossible to answer definitely the question put before us, as to the existence or non-existence of disease; and if we would allow this simple admission of our fallibility in cases of doubt to supplant those positive assertions which are too often made, much trouble and no little credit which we now forfeit would be reserved to us. It cannot be too much insisted upon that there is a limit to the experience and professional knowledge of the most able amongst us, and to recognise this is the first duty we owe to our profession and to ourselves. It is not, however, alone in regard to structure and conformation that trouble besets the path of the veterinary practitioner; the presence or absence of lameness is a point about which we, unfortunately, too often disagree; but here, again, the discrepancy does not always, as would appear from our critics, warrant the burning reflections which are sometimes heaped upon us by the uninformed. Nothing can be more obvious than the want of uniformity in the gait or mode of progression displayed by different horses. While it may be allowed that in the majority of instances there is freedom, steadiness, and harmony of movement, this is by no means invariably the case. Those who, with myself, have the care and tuition of large numbers of students are deeply impressed with the strange and erroneous impressions which the various descriptions of normal action leave on the minds of those whose experience has not reached the adjusting stage, *i e*, who have not yet learnt to appraise the influence of conformation in perfecting or disordering the symmetry of action. This same discrepancy unquestionably prevails, though to a less considerable extent, in the higher ranks of our profession, and hence we find one eminent man regarding as lameness that which is assigned by another to what is generally expressed as a peculiar gait; and in this, as in the anomalies of conformation, it is often difficult, or even impossible to positively assert which is in the right. Such differences of opinion, although unsatisfactory, are, I submit, inevitable under the circumstances sometimes before us, inasmuch as the fact, one way or the other, is incapable of proof. In illustration of the proposition now before us, I need only refer to one or two conditions affecting action in such a way as to render it misleading. That state of the

Croup known as "goose rump," when existing in an exaggerated form, imparts to the action behind the appearance of lameness in one hind limb when the horse goes from you, and in the other as he approaches you. The slight inclination inward of one fore-foot conveys the impression of lameness in the opposite limb. Straight shoulders and upright pasterns, associated as they frequently are with short and stilty action, tend to the belief of lameness of both fore-legs. The hind limbs, set inordinately apart, occasion considerable oscillation of the body, and a sense of lameness is excited as affecting both fore limbs.

As with the organs of locomotion, so with those of respiration, the physiogical phenomena vary in different animals, and in the same animal under different conditions. All of us have noticed how various are the breathing sounds emitted during exertion within the limits of health, and examples are not rare which appear to occupy the narrow borderland of disease. It is here, again, that the question of soundness becomes essentially one of opinion, and it would be surprising, indeed, if under such delicate circumstances discrepancy did not arise among us. This being so, I do not see any reason why doubtful cases should not be so represented to clients who are as capable as ourselves of recognising the fact that there is a limit to human knowledge and human art. I have always found that they appreciate a reasonable explanation of a difficult position, and are prepared to allow the same consideration to us as to others whose shortcomings in the practical business of life are not less conspicuous than our own.

Diversity of opinion on individual cases is every now and again the result, not of any want of care or professional skill on the part of experts, but the natural outcome of the eccentricity of disease, over which they have no control. Very hard things have been written and spoken of the veterinary profession because of this absence of accord on technical matters. It is rarely allowed that a defect present to-day may soon disappear, or even be absent to-morrow, and that what was obvious to one man on a particular occasion may at a later period be non-existent, and consequently unobserved by another.

The apparent inconsistency of conflicting testimony thus adduced by veterinary witnesses, even when the proverbial "six on each side" are engaged, is not always incapable of being reconciled with sound professional judgment and honourable conduct. Every one of moderate experience in veterinary practice can recall examples of sudden and brief lameness, and of temporary local manifestations of disease in horses recently certified sound, which have led to conflict of opinion between themselves and their *confreres*, and in not a few instances also to costly and discordant actions at law. But these discrepancies cannot reasonably be said to reflect on our ability as experts, arising as they do out of altered conditions of the animals themselves between one examination and another, and not from any disparity of judgment in the members of our profession. Differences arising out of this cause, however, between buyers and sellers might possibly be guarded against to some extent if veterinary surgeons would meet and confer together on the merits of the case, instead of emulating the example of their clients by standing aloof from each other. It is the interest of the lawyer to guard against approaches of this kind, and to drag into court their conflicting testimony; but it is the gain and duty of veterinary surgeons to protect themselves from what the public may and do construe into exhibitions of professional and moral weakness.

Besides the weaknesses to which horse-flesh is heir, we have also to contend against other and more mischievous influences—the evil designs and the shifts and tricks of unprincipled men, with which all of you are more or less familiar. In this connection our young recruits stand much in need of counsel and protection, and vigilance throughout our ranks must be main-

tained if we are to escape the subtle devices and pitfalls which beset our path. Added to all this, the conditions under which examinations as to soundness are conducted are frequently of the most unfavourable description. In the bustle of fairs, the showyard, and the auction mart there is much to distract attention and to try the capacity and confidence of the most astute of our profession. Still no considerations of this kind are allowed to weigh against the responsibility involved in the undertaking.

Great as are the difficulties, natural and imposed, with which we have to contend in the examination of horses, I fear we must admit ourselves blamable for much of that want of unanimity which brings us so frequently in collision with each other on professional matters. Whether that blame springs from a want of aptitude and skill, from the careless exercise of our calling, or from the perversity of our nature, it is not for me to suggest; but when we find differences of opinion expressed upon matters about which disagreement is not reasonably possible, the conclusion is irresistible that something is wrong in the profession itself, and for which the profession alone is responsible.

Turning to the responsibilities which attach to the examination of horses, the first is in relation with ourselves, and requires that whatever we do in this, as in all other branches of our calling, shall be creditable alike to our professional and moral character; and if perchance we fail in sustaining the one, we shall at all risks maintain the integrity of the other.

To our client we are answerable for the efficient performance of the duty entrusted to us, and the soundness of any advice which we may venture to give him. In this connection I would observe that the action of our clients where adverse opinions are given in respect of the soundness of horses recently purchased is in a large measure determined by the representations of the veterinary surgeons, and the question of litigation, mutual settlement, or arbitration depends very much upon the manner in which such representations are made. I do not hesitate to say that large numbers of cases, which now find their way into our law courts to scandalise our profession and disgust our clients, might be brought to an amicable settlement if we individually would be less certain on points about which we are known to differ collectively. It is no uncommon thing to hear members of our profession fixing the duration of a splint, a spavin, or a curb, with all the confidence and authority of an eye-witness of the cause which induced it, and affirming with certainty on other matters of an extremely delicate and debatable nature. Now, I think many of our troubles, and those of our employers also, commence here. A man suffering under the disappointment of possessing a lame horse, whether that lameness arose antecedent or subsequent to purchase, is naturally eager to justify himself in sending him back, and it is no part of the veterinary surgeon's duty to impose any obstacle in the way of such a course, but it is most desirable in the interest of the profession that any opinion he may express with regard to any ailment should be guarded by reasonable qualifications where such are necessary. It not infrequently happens, for want of this precaution, that the client obtains the information which his veterinary adviser should have imparted to him at the cost of a vexatious lawsuit, or some brother practitioner, and with him the general body of the profession, is made to suffer for the omission. What appears to me to be desirable in order to guard ourselves from unnecessary responsibility, is to be less certain in our statements as to matters of opinion, to be more open with our clients and our *confreres*, and to desire, least of all, that our emphatic judgment should be confirmed in a law court at the cost of others. In addition, we need thoroughness in our work, the adoption of improved methods of inquiry, close observation and careful comparison of individuals and individual parts, together with the exercise of ingenuity and patience. These

are the qualities which will enable us to eliminate error, and embrace the truths on which success depends in this as in all other branches of our pursuit.

Mr. WALKER (Oxford) said that he was not going to discuss Professor Axe's excellent paper at length. It was a question which required calm and thorough discussion. He wished that Professor Axe had made it clear what was and was not soundness. Unfortunately, there is always a diversity of opinion on that point, and he was afraid it was a question which would have to remain open until the profession in general made the point clear.

Mr. FLANAGAN said that they were indebted to Professor Axe for his excellent and carefully prepared paper. The matters contained in it were truths known to most of them. With reference to the action of horses, the remarks contained in the paper were those with which he entirely agreed. Action was guided and produced to a very considerable extent—probably more than they would give credit for—by conformation.

Mr. MELLETT said that he thought it was a question for the profession to decide, whether a horse with a splint or curb should be passed as sound.

Mr. SIMPSON, Maidenhead, did not propose to attempt to decide against his brother practitioners as to what was or what was not unsoundness. He wished rather to refer to the actions which had lately been taken by persons against veterinary surgeons who had examined horses prior to their purchase, and the adverse decisions of the judges as regards the veterinary surgeon. In the first place, he ventured to say that one half of these cases would never see a court of law if it were not for the advice given by members of our own profession. There was a class of practitioners, and some of them holding high positions so far as extent of practice was concerned, who were never more delighted than, when called on for an opinion, to be able to say "There has been negligence here," or "This splint *must* have existed when you had the horse examined," etc. Then, again, there were unfortunately veterinary surgeons who would venture to advise gentlemen that the neglect of their everyday attempt to point out what, in their opinion, was an unsoundness, fully justified the said gentlemen in at once commencing an action for the recovery of damages, and so long as members of the profession are disloyal to one another there is every encouragement given to clients to bring actions against their veterinary advisers. If, instead of advocating actions at law, members of the profession who are called in to give a second opinion would honestly point out to clients that all veterinary surgeons do not attach the same importance to trivial defects, and that even where an unsoundness to a slight extent has been overlooked, the conditions under which the animal was submitted for examination should be considered, these vexatious actions would soon be reduced by at least one half. Mistakes are made by all of us, but the desire for a little transient notoriety was apt to blind men's eyes to this fact.

Mr. GOODALL agreed with what had fallen from previous speakers, with reference to the interesting paper to which they had listened. He offered a few observations upon the shapes of horses, and asked whether one would be justified in advising a man to buy a horse which had, they would say, "a bit of a curb," possibly the result of a strain in jumping. He thought young members should make themselves thoroughly acquainted with the shapes and makes of horses, and ought to give their opinions a good deal with regard to the shape which should be borne in mind when making an examination.

On the motion of Mr. WRAGG, seconded by Mr. GOODALL, it was unanimously agreed that the discussion of the paper should be deferred until next meeting of the Association in London.

Hearty votes of thanks having been accorded to Professor Axe and the President, the meeting terminated.

## LANCASHIRE VETERINARY MEDICAL ASSOCIATION

THE Quarterly Meeting of this Association was held at the Blackfriars Hotel, Manchester, March 12th, 1890.

Present: Mr. W. A. Taylor, President; Messrs. P. Taylor, T. Greaves, T. Hopkin, A. Lawson, E. Faulkner, J. B. Wolstenholme, W. F. Shore, E. Day (9th Lancers), and the Secretary, Manchester; R. C. Edwards, Chester; W. Woods, jun., Wigan; J. T. Thompson, Sheffield; W. Noar, Bury; W. Hall, Royton; A. Leather, Liverpool; T. Eastwood, Northwich; A. Munro, Altrincham; W. Peel, Durham; G. G. Mayor, Kirkham; T. Briggs, Bury; and Prof. Pritchard, London.

Messrs. J. L. C. Jones (Manchester), T. Eastwood (Northwich), C. Blackhurst (Broughton, near Preston), Rogerson (Kirkham), W. F. Shore (Manchester), and F. Armstrong (Accrington) were elected members.

The President nominated for membership Mr. T. H. Dale, Chorlton-cum-Hardy.

Professor PRITCHARD introduced in a very able address the subject of Fistula. After defining a Fistula, he said the general location of Fistula is in lowly organised tissues, and it is a matter of importance to distinguish old from recent Fistula.

In speaking of the causes, under the heading congenital, he named those occurring near the base of the ear, and in the region of the anus and perineum. As instances of abscess causing Fistula, he mentioned Poll-evil and Quittor. Of other causes he alluded to ulceration of an alveolar sinus, pricks in shoeing, suppurating corns, impactment of foreign bodies, scirrhous cord, and surgical wounds and injuries causing extensive sloughing.

*Treatment.*—In some cases it is sufficient to enlarge the external opening and keep the parts clean, and in all cases the Professor urged that internal treatment should be observed. Compression is often useful in inducing the adhesion of the walls of the sinus. In some cases the injection of stimulating agents is beneficial, and as suitable remedial dressings he named tr. myrrhæ, weak solutions of the salts of mercury, zinc, copper, etc. When speaking of the actual cautery, he alluded to the galvanic wire, but he was not particularly partial to it. In the treatment of Quittor, and indeed all other Fistula, it is essential to note the character of the discharge in order to judge of the best remedial means to adopt.

In Quittor he advised the injection of a solution of zinc chlor. (Burnett's fluid), but this should not be used more than once in an ordinary case.

Plastic agents are useful in open parotid duct. Seton is useful in fistulous withers. Drainage not usually so successful as in human surgery. Laying open of sinus should be resorted to where admissible. The use of tents he did not care for.

*Termination.*—In the majority of cases resolution. In some deformity, and of these he cited Poll-evil, False Quarter, deformed foot, permanent Sandcrack; and here he deprecated the perpendicular division of the coronary secreting substance when operating on Quittor, as being likely to result in permanent Sandcrack or False Quarter; oblique section he contended would obviate this.

In some cases, where open joints and other mal-conditions supervene, patients have to be destroyed.

An interesting discussion ensued.

On the conclusion of Professor Pritchard's reply, a very hearty vote of thanks was awarded him on the motion of Mr. T. Greaves, seconded by Mr. A. Lawson.

Dr. Fleming has consented to read a paper on Horse-pox and its relation to Cow-pox, on September 24th.

PETER PIKE, *Hon. Sec.*

## ROYAL AGRICULTURAL SOCIETY.

AT the monthly Council Meeting on July 30th, Sir JOHN THOROLD stated that Professor Brown had presented the following report:

*Pleuro-pneumonia.*—This disease has recently increased in Great Britain, more particularly in England. In the seven weeks from 1st June to 19th July, 124 fresh outbreaks of Pleuro-pneumonia were reported, ninety-six in England and twenty-eight in Scotland. The recent outbreaks have occurred in the counties of Chester, Cumberland, Essex, Kent, Lancaster, Leicester, Middlesex, Northumberland, Surrey, York (West Riding), Aberdeen, Edinburgh, Fife, Lanark, and Renfrew.

The total number of cattle found affected with the disease was 422, of which 314 were in England, and 108 in Scotland; in addition to those, 1,777 healthy cattle which had been exposed to the risk of infection were slaughtered; 1,316 of these were in England, and 461 in Scotland.

In Ireland there were thirteen fresh outbreaks reported in the seven weeks, thirty-two cattle were found affected, and 486 healthy cattle in contact with the diseased animals were slaughtered.

*Anthrax.*—Between 1st June and 19th July twelve outbreaks of Anthrax were reported in Great Britain, eleven of them in England and one in Scotland. These outbreaks occurred in the following counties, and on the following dates:—Bucks, Beaconsfield district, June 13th; Cumberland, near Carlisle, July 13th; Dorset, Cerne Abbas district, June 4th and 25th, and July 3rd; Kent, near Bromley, June 17th; Lincoln (Lindsey), June 5th and 22nd; Notts, near Newark, June 9th; Stafford, Shenstone, June 13th; Suffolk, Cosford, June 26th. The outbreak in Scotland occurred near Nairn, on June 3rd. In these outbreaks fifty-four animals were attacked, three diseased animals were killed, twenty-four died, and twenty-seven recovered.

In Ireland only two outbreaks of Anthrax were reported, and two animals attacked.

*Swine Fever.*—Of this disease 1,009 fresh outbreaks occurred in Great Britain, in the period above mentioned; 5,182 swine were attacked, 2,189 diseased pigs were killed; 2,186 died, 537 recovered, and 760 remained alive when the return was made up. In Ireland eighty-five outbreaks of swine fever were reported, and 256 animals were attacked.

*Rabies.*—In England eighteen cases of this disease were reported in the counties of Bucks, Derby, Lancaster, London, Middlesex, Norfolk, Northampton, Stafford, Warwick, and York (West Riding). In Ireland Rabies is much more prevalent and more widely distributed than in England, there having been eighty-six cases reported in nineteen different counties in the seven weeks.

In connection with the department of research in comparative Pathology established under a grant from the Royal Agricultural Society, the necessary apparatus for the equipment of the laboratory at the Royal Veterinary College, *i.e.*, microscopes, camera, etc., are ready for use, and Mr. Coghill has commenced his work. Mr. Bland Sutton has consented to give a course of lectures on Comparative Pathology, and Professor Crookshank will undertake the lectures and demonstrations on Bacteriology during the session which will commence next October.

With reference to the letter from the Board of Agriculture on the subject of Pleuro-pneumonia, which was about to be considered by the Council, the Committee recommended that in addition to any other steps which might be deemed desirable, each of the Society's provincial veterinary surgeons be instructed to immediately inform the secretary of the Society by telegraph of any outbreak of Pleuro-pneumonia occurring within his district or otherwise

coming under his cognisance, such action to be independent of any duties which he might have to fulfil as an inspector of the local authority or of the Board of Agriculture. They recommended that the cost of telegraphing should be defrayed by the Society, and that the telegrams when received should be immediately forwarded, by the secretary, to the Board of Agriculture. A report had been received from Professor Brown certifying that none of the animals exhibited at the Plymouth Meeting were affected with any contagious disease, and that no outbreak of infectious disease had occurred during the Show. A letter had been received from Mr. Owen Thomas, of Tycoch, Llanerchymedd, accepting the appointment of provincial veterinary surgeon for the county of Anglesey. The question of the continuance of the Society's horse-shoeing competitions had been discussed, and it had been agreed that it would be desirable to continue them for the present until a competition had taken place in each of the Society's districts, or until the Registration Scheme of the Farriers' Company was in full working order. The Committee proposed to bring up in November next definite regulations as to the horse-shoeing competition at the Doncaster Meeting next year.

*Pleuro-pneumonia Act*, 1890.

The PRESIDENT said that it would be convenient, before the report of the Veterinary Committee was adopted, that the letter addressed to him on the 16th inst. by the Board of Agriculture, on the subject of the Pleuro-pneumonia Act of this session, should be read and discussed.

The SECRETARY then read the following letter:

Board of Agriculture,
3, St. James's Square, London, S.W.,
*July* 16th, 1890.

My Lord,—I am directed by the President to call your attention to the Act of Parliament (53 and 54 Vict., c. 14), which has recently received the Royal Assent, for conferring on the Board of Agriculture further powers for dealing with Pleuro-pneumonia in cattle.

You will observe that it provides for the slaughter of cattle by the Board, and for the payment of compensation out of Imperial funds. It comes into operation on the 1st September next, and it is needless to point out that the success of the measure will greatly depend upon the cordial co-operation of the owners and breeders of stock, and of persons connected with the cattle trade throughout the country.

Pleuro-pneumonia can be arrested without difficulty when it is discovered; but in many cases its existence is easily concealed, and it is essential for the proper performance of their duties that the Board of Agriculture should receive in every case, as soon as it is known, prompt and certain information of the existence of the disease.

The high position of the Royal Agricultural Society of England, comprising amongst its members so many of the leading agriculturists of the kingdom, enables it to exercise an influence in agricultural circles which is second to no institution in the country.

I am directed to express the hope that in the execution of the task which is before them, the Board may receive your cordial support, and I am to say that for any assistance which your Society can render by the exercise of its influence in securing for the Board the earliest intimation of outbreaks of disease, the President will feel that he is greatly indebted.

I am, my Lord, your Lordship's obedient servant,
(Signed) C. HARRY TENNANT, *for Secretary.*

The President, Royal Agricultural Society of England,
12, Hanover Square, W.

Sir JACOB WILSON said it would be in their recollection that at the meeting of the Council held in November last a representation was made to the Government as to the great desirability of pushing forward legislation as soon as possible with regard to Pleuro-pneumonia, in order to establish the principle of central in place of local action. As they were aware, legislation was not a very rapid process at the present time; but it was gratifying to find that at last, by the assistance of both sides of the House, the Government bill had passed all its stages and, having now received the assent of Her Majesty, had become an Act of Parliament. At the deputation which waited upon the Minister of Agriculture in February last, they strongly urged that it was most important to get this measure passed in time for effect to be given to it before the cattle went out of the yards, when the dealing with the disease was comparatively easy. That unfortunately could not be done, and the result—which was fully anticipated and confidently expected on the part of those most interested—was, that as soon as the movement began to take place in order to carry out the general economy of the farm at that particular time of year, the disease had spread far and wide. That was the cause of the increase of prevalence of the disease referred to in the report which Sir John Thorold had just read. The above movement of cattle might be regarded as the general cause of the dissemination and spreading of disease. The special cause, however, was the fraudulent concealment of the existence of disease, not only on the part of owners of stock in the country, but more particularly—he was sorry to say—on the part of those who acted as the medium between the sellers and the purchasers. In support of this he need only point to what had taken place in the dairies of Edinburgh, and in the counties of Chester and Lancaster, to show how very widespread this dissemination of disease had been. What the remedy of this was to be he was not prepared to say, but his own opinion was that it rested very much with the magistracy of the country. The fines they had hitherto inflicted showed that they were not alive to the responsibility resting upon them, and the paltry nominal fines which had been imposed had no sort of deterrent effect upon the persons to whom he referred. There was another point which very much required their attention, viz., the establishment of a system of registration on the part of those whose business it was to sell cattle throughout the country, so that the central authority might be able to trace the disease to its origin, and track its subsequent developments. Such a suggestion had already been made by the auctioneers of the marts in the county of Northumberland, and he had reason to believe that it would be adopted in other parts of England. He would strongly urge members of Council in their respective districts to do all in their power to further such a system, which would be of infinite importance and assistance to the Government. They were aware that one of the great reasons and justification for a central authority had been the success which had attended the central action in Holland; but they must bear in mind that in Holland the orders of the Government were most absolutely and implicitly obeyed by the farmers of that country. Now, it would be utterly hopeless, he felt, without the co-operation of the stockowners and agriculturists generally, to achieve their great object in getting rid of the disease. He strongly urged that some representation be made, not only to the veterinary officials of the Society, but also to the general body of their members. He had no doubt whatever that when the time came—after the 1st September, and especially after the cattle had been brought in once more from the fields—the disease would be dealt with in a very heroic manner by the central authority. Farmers and stockowners would probably have to submit to many inconveniences, such as the stoppage of fairs and markets in diseased districts, and some indirect loss would doubtless ensue. He strongly urged the Council to maintain the

position they had hitherto held—if he might make bold to say so—as the leaders of agricultural thought in the country, and to impress upon the 10,000 members of the Society the necessity of co-operating to the best of their ability in the endeavour now being made to get rid of the disease. With that object he had drawn up the following resolutions, which he now begged leave to move:—

1. That the Council having received a letter from the President of the Board of Agriculture respecting the Contagious Diseases (Animals) (Pleuro-pneumonia) Act, 1890, desires to afford to the Government the utmost possible assistance in carrying out the provisions of the Act.

2. With this view the Council begs to impress upon all members and officials of the Society the great importance of prompt declaration of disease whenever it may appear, and a loyal submission to the orders which may from time to time be issued by the Board of Agriculture; and the Council further requests that they will use their influence to this effect in their respective localities.

3. That a copy of these resolutions be forwarded to the Board of Agriculture, together with a covering letter to be signed by the President, explanatory of the action which the Society proposes to take; and that a circular letter be addressed to all the members of the Society, requesting their co-operation in securing for the Board of Agriculture the earliest possible intimation of outbreaks of Pleuro-pneumonia.

Sir JOHN THOROLD seconded, saying that the recommendation of the Veterinary Committee was the most that the Committee felt that they could make as a Committee, though he entirely sympathised with the more general action proposed by Sir Jacob Wilson. There were very many cases in the country where the disease was concealed, and the Veterinary Committee thought it possible that the Society's Provincial Surgeons could obtain knowledge of the disease which the central authorities might not otherwise get. They suggested, therefore, that these gentlemen should be asked to telegraph to the Secretary of the Society any cases of disease coming under their notice, and that the Secretary should at once inform the Board of Agriculture. With regard to the resolution of Sir Jacob Wilson, he felt it was most important that they should have the general support of all the members of the Society in carrying out the recommendation of the Council.

Mr. GARRETT TAYLOR supported the resolution. His county (Norfolk) had been credited with having most of the disease. This was owing to the importation of Irish cattle. They found no difficulty whatever in getting all the information from the owners of cattle in the county as to the existence of disease. There was no desire for secrecy. The great difficulty they found in regard to the cattle which came into their market was in tracing where the disease came from. All the information they got was that the cattle were collected in Ireland and sent over here, but they could not trace where the cattle originally came from. He was afraid the difficulty was that in Ireland they were very interested in hiding the disease, and not giving any information whatever. There would be a fearful loss, he was afraid, not so much to them as to the Government, unless some means could be found of tracing the cattle in Ireland.

Sir NIGEL KINGSCOTE also supported the resolution. He would only supplement the remarks of the last speaker by saying that there were delinquents not only in Ireland, but in England. He fully endorsed what Sir Jacob had stated, that to get hold of the unscrupulous middlemen was the great point. It would certainly tend to this object if dealers were licensed and registered, but he was afraid that, even with the co-operation of almost everybody interested in agriculture, until the concealment of disease was made criminal and not visited merely by a fine, they would not get to the bottom

of it. The great difficulty was that these people did not care for fines, and embarked largely in dealing operations, knowing that the fine was of little account in their bargains. He hoped the Council and the members of the Society would give effect to Sir Jacob Wilson's resolution.

Mr. TERRY said that since the last meeting of the Council he had been speaking to a man largely interested in London cowsheds, who stated in reply to a question that although he knew of the existence of the disease he would not give information in consequence to the injury to his trade. He said that he had to send milk to six or eight places where the disease existed in order that the milk-dealers might keep their contracts for the supply of milk to various institutions. The great difficulty was that they could not compensate a man when they took away his entire living. Another reason was that where a man had a diseased animal and called in a veterinary surgeon, the surgeon would say that the animal had lung disease, but he could not tell whether it were Pleuro-pneumonia until the animal was killed. If after *post-mortem* examination the animal proved not to be suffering from Pleuro-pneumonia, no compensation was paid. Owners did not like to run the risk in this way of getting no compensation at all.

The PRESIDENT said that, before putting the resolution, he would like to point out that this matter had been discussed at considerable length in the House of Lords, and Lord Spencer—a member of that Council—had done great public service in calling attention to the subject. He pointed out, as had been confirmed by the practical observations of Mr. Terry, that the most dangerous centres of the disease were undoubtedly the cattle sheds belonging to owners of milking cows in their large towns, and it was almost an impossible thing to expect that a man would voluntarily sacrifice his business in order to reveal the condition of his cows. As he had always urged, he thought that unless they could obtain from some means or another—and he was not very sanguine about it—the co-operation of the municipal authorities in the large towns, their efforts in the counties would be in vain. This must be worked, he need not remind them, through the Animals' Diseases Committees which existed in all the County Councils of the country. He would undertake, as a member of the County Council of Durham, where the demand for milk was enormous, and where men would do everything in the world rather than show up the fact that the disease existed in their cattle sheds, to impress it strongly upon his Committee, and by persuasion or other means to enlist the sympathy of the municipal authorities in the towns, where this matter was much more important than in the rural districts, because there they had their own farmers, and they could work with them. He undertook to pay constant and fixed attention to the matter in his own district, and he trusted that the other members of Council would do the same in their localities.

The resolution was then put and carried unanimously, and, after further remarks by Mr. CHARLES HOWARD, Sir JACOB WILSON, and the Earl of POWIS, it was agreed that a letter signed by the President should be forwarded to the President of the Board of Agriculture, together with copies of the resolutions.

It was also decided that a circular letter signed by the President should be issued to all the governors and members of the Society, asking for their co-operation in the matter, and that letters should be addressed to the Society's Provincial Veterinary Surgeons as suggested by the Veterinary Committee, whose report was then adopted.

# Parliamentary Intelligence.

*House of Commons, August 8th.*

## TUBERCULOSIS.

Mr. D. CRAWFORD asked the President of the Board of Agriculture whether his attention had been drawn to the complaints of farmers and butchers who were prohibited from selling the carcases or milk of cattle affected with Tuberculosis, but received no compensation as in the case of Pleuro-pneumonia; and whether he would consider the expediency of extending the provisions of the Contagious Diseases (Animals) Acts to Tuberculosis.

Mr. CHAPLIN said his attention had been directed to the matter, and some time ago he received a deputation on the subject, when he gave a full answer to the representations made to him. He then offered to put Tuberculosis in the list of diseases coming under the Contagious Diseases (Animals) Act if any request to that effect were made, but up to the present time no such request had been received. He would remind the hon. gentleman that a Committee had been inquiring into the subject, and he thought it would be well to await their report.

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# Army Veterinary Department.

*Gazette*, August 5th.

Inspecting Veterinary Surgeon G. Evans, M.D., to be placed on retired pay. Dated 7th August.

At the Lévee, held at St. James's Palace, by order of Her Majesty, on July 6th, J. D. Lambert, Principal Veterinary Surgeon, was presented by the Duke of Cambridge on appointment. Captain J. R. Beech, C.M.G., 20th Hussars (late of the Army Veterinary Department), was presented by Major-General Sir F. Greenfell, K.C.B., on promotion.

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# Jurisprudence.

## THE LAW AS TO BITES OF HORSES AND DOGS.

IN the City of London Court on August 4th, before Mr. Commissioner Kerr, the case of "Burley v. Collinson" was heard, in which the plaintiff, William Burley, 5, Duckett Street, Whitechapel, sought to recover the sum of £5 for personal injuries he had sustained in consequence of being bitten by a horse which was the property of the defendant, Mr. Collinson, of the Four Swans booking office, Camomile Street, E.C. Mr. William Hurd, for the plaintiff, said his client was a carman, and that on June 28, while loading some goods in Union Court, Old Broad Street, he was severely bitten on the shoulder by the defendant's horse, which was left unattended. The plaintiff added that the blood flowed freely, and the pain he suffered was considerable. Mr. C. J. Smith (Rollit and Sons) for the defendant, said the plaintiff was guilty of contributory negligence in loading the van of which he was in charge. The horse was struck by the goods the plaintiff was carrying, which caused him to bite. He had never been known to bite any one before. Mr. Hurd said

he thought he should have been able to prove the contrary, but he could not do so. Mr. Commissioner Kerr said that the law of this country was that dogs and horses were allowed one bite and no more. The defendant's horse had had his bite, for which his master was not responsible in law. That, he thought, was an extraordinary state of matters; but there it was, and the plaintiff must abide by it. Judgment must be entered for the defendant with costs.

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## Obituary.

THE following deaths have been notified:

W. Markham, M.R.C.V.S., Rugeley, Staffordshire, who graduated in 1878.

H. P. Copeland, M.R.C.V.S., a Dick Student of 1853, and graduate of the R.C.V.S., 1880.

France has recently sustained a heavy loss by the deaths of Professors Goubaux and Toussaint, two well-known names for many years in the annals of Veterinary Medicine and Surgery. Armand Goubaux succumbed on the 29th of last June to a disease of long duration, in the seventieth year of his age, and was interred with much ceremony at Père-Lachaise Cemetery, Paris; being an officer of the Legion of Honour, military honours were bestowed on his remains, and addresses were delivered at the funeral by Professors Chauveau, Nocard, Trasbot and Leblanc. Greatly esteemed by his professional colleagues for his private and scientific worth, these addresses are ample testimony to the position he had gained for himself by his long labours and natural talent. He entered the Alfort Veterinary School in 1836, and obtained his diploma in 1841, becoming *Chef de Service d'Anatomie* there immediately afterwards, and worked his way upwards until he became Director of the school, retiring after forty-six years' labour at that celebrated institution, with the well-merited title of Honorary Director. His writings are numerous and of much value, and the *Traité de l'Exterieur du Cheval*—a second edition of which has just been issued—written in conjunction with one of his old students, M. Barrier, is a monument of his erudition and special aptitude. Member of a large number of scientific societies, medical and veterinary, he was also an Honorary Associate of our College.

In Toussaint, medical, no less than veterinary science, loses a most distinguished and devoted student. He died on August 4th, at the early age of forty-four years, from a lingering affection of the brain, brought on by overwork, after achieving a position attained by very few in our profession. A doctor in science and in medicine, a laureate of the Institute of France, Officer of the Academy of Medicine, Chevalier of the Legion of Honour, and member of many scientific societies—being also an Honorary Associate of the Royal College, he had been before his illness Professor at the School of Medicine and the Veterinary School at Toulouse. Though a most accomplished veterinarian, he will be best remembered, perhaps, for his researches in Tuberculosis, the results of which have been of the greatest importance. With Professor Peuch, he published the well-known Manual of Veterinary Surgery, which has passed into a second edition. He visited England a few years ago to attend a meeting of the British Medical Association at Cambridge, at which he was well received, and here we had the pleasure of becoming acquainted with him and learning his advanced views on the subject which he had then made his own.

The deaths are announced of Professor Sienkon, the learned Director of the Veterinary Institute at Warsaw; of Professor Kuchenmeister, of Dresden, known as an eminent helminthologist; and Professor Schneider, of Breslau, who had published important works on Nematode worms.

## Notes and News.

VETERINARY APPOINTMENT.—Governor Jackson has appointed Robert Ward, F.R.C.V.S., State Veterinary Inspector of Baltimore, U.S.A., in place of W. H. Wray, who resigned to become a United States sanitary inspector.

THE HUMAN FOOT.—The small toe in man has often but two joints, owing to the last two bones forming into one piece. The phenomenon according to the researches of Herr Pfitzner, occurs more frequently among women than men. It is found in 31 per cent. of the male sex, and 41½ per cent. of the female sex. But it is not confined to adults, and is about as common in children. Herr Pfitzner does not therefore think it due to wearing shoes, but to a natural degeneration of the fifth toe, and it is yet uncertain whether this degeneration will end in its practical disappearance from the human foot.

PIGEON FLIGHT.—The French Minister of War lately offered a prize for the swiftest bird in a flight from Perigueux to Paris, 310 miles. There were 2,746 entries, and the winner did the distance in seven hours and thirty-four minutes.

THE LIVE STOCK OF THE UNITED STATES.—In the United States the increase, during the last ten years, has been a great one for every description of live stock, except mules, as can be seen from the following table:

| | 1880. | 1890. | Increase in Ten Years. |
|---|---|---|---|
| Horses .. .. | 11,201,800 .. | 14,213,837 .. | 3,012,037 |
| Mules .. .. | 1,729,500 .. | 2 331,027 .. | 601,527 |
| Milch Cows .. | 12,027,000 .. | 15,952,883 .. | 3,925,883 |
| Other Cattle .. | 21,231,000 .. | 36,849,024 .. | 15,618,024 |
| Sheep .. .. | 40,765,000 .. | 44 336,072 .. | 3,570,172 |
| Pigs .. .. | 34,034,100 .. | 51,602,780 .. | 17,568,680 |

ACTION OF WHITEWASH ON MICROBES.—Some scientific researches as to the advantages of whitewashing the walls of rooms inhabited by persons suffering from contagious maladies, which have lately been conducted by Dr. Giaxa at the Hygienic Institute of the University of Pisa, are of special public interest just now. It was desired to establish what influence whitewash or lime might have on the microbes of Tuberculosis, Typhoid, carbuncle and other diseases. The experiments were conducted in a mode analogous to the real situation. Portions of walls were smeared with substances adapted to the development of the microbes, and were then infected and afterwards covered with a coat of whitewash. Twenty-four hours afterwards, these portions, from which all external agents had been carefully excluded, were examined. It was found that the bacillus of Tuberculosis, carbuncle, and some other diseases resisted even renewed applications of whitewash, but that the Cholera and Typhoid microbes were destroyed by one application.

THE LIVE STOCK OF SOUTH AFRICA in 1889, including the several divisions of the Cape, Griqualand East, Tembuland, and Transkie:—

| | |
|---|---|
| Horses .. .. .. .. .. .. .. | 295,370 |
| Mules and Asses .. .. .. .. .. .. | 64,322 |
| Draught Cattle .. .. .. .. .. .. | 445,349 |
| Other Cattle .. .. .. .. .. .. | 1,057,496 |
| Wooled Sheep .. .. .. .. .. .. | 12,308,433 |
| Other Sheep .. .. .. .. .. .. | 2,155,002 |
| Angora Goats .. .. .. .. .. .. | 3,071,597 |
| Other Goats .. .. .. .. .. .. | 2,065,940 |
| Pigs .. .. .. .. .. .. .. | 166,835 |

Compared with the numbers for 1888 there was an increase in all kinds of stock.

THE MUZZLING ORDER IN MIDDLESEX.—From the return presented to the Middlesex County Council by the various inspectors under the muzzling order it appears that during the quarter ending June last 5 dogs were seized for Rabies in the county, as against 7 in the previous quarter. During the same period 526 dogs were seized, 77 of which were claimed and the remainder slaughtered. The total number of dogs seized in the year was 3,250, of which 488 were claimed and 2,634 slaughtered. In the same period there were 49 cases of Rabies, against 22 in the previous year.

A REMARKABLE TRAM-CAR HORSE.—"Old Billy," a Boston street-car horse, is now forty years of age, and is the oldest railway horse in the world. For twenty-five years he worked on a car running from Brookline to Boston, and during this remarkable career never lost a trip from sickness or inability. He actually travelled during this period over 125,000 miles.

GOVERNMENT STALLIONS IN BAVARIA.—In Bavaria there were at the Royal Studs 429 stallions, which covered altogether 21,554 mares—*i.e.*, fifty mares per stallion (against fifty-two in the previous year).

CONSUMPTION OF HORSE-FLESH.—Hippophagy has taken so great an extension in Germany that since the month of October last the price of horse-flesh has increased by 25 per cent. at Cologne, by 30 per cent. at Munich, by more than 40 per cent. at Dresden, and by 90 per cent. at Hanover. This constant increase has already had as its result the placing of horseflesh out of the reach of the poor.

EARLY BREEDING.—A correspondent writes to the *Live Stock Journal* of August 1st, as follows: An old friend of mine who resides in a neighbouring parish bought, a few years ago, an Alderney cow with a heifer-calf a few days old by her side. This calf was weaned with several other calves, among which was a bull. At thirteen months old she became a mother. The act of calving was a most trying affair. The little thing had not sufficient strength and weight to stand against the power used, and so her head was tied to a post. In this manner the calf was ultimately got away, dead of course. With care and attention the little thing soon got over her trouble, and was used—instead of the bottle—for suckling lambs. The method adopted was for a boy to sit on a stool with a lamb on his lap and put the teat into its mouth, and as soon as they had well taken to her they would stand on their legs and suck. Three times a day she was brought into the yard for suckling purposes, and if there was a little delay in bringing her up she would stand at the field gate and bellow to be admitted to them, and was as fond of them as if she had been their real mother. She only lived to have four calves, dying with the last of milk-fever. The case is, I imagine, without a parallel.

HYDROPHOBIA FROM THE BITE OF A RABID HORSE.—The St. Louis *Weekly Medical Review* states that Dr. J. P. Aspy, of Columbus, Ind., recently died of what was considered to be Hydrophobia, some time after receiving a bite from a "mad horse." The animal had previously been bitten by a rabid dog.

SOUTH AFRICAN HORSE-SICKNESS.—The Herbert (Cape Colony) correspondent of a local paper says:—"Horse-sickness has made sad ravages among the horses of that division during the last five weeks. It would be interesting to know the value of horse-flesh destroyed by this disease alone per annum. I believe that fully one-quarter of all horses owned by farmers occupying low-lying lands would be found to have succumbed to it this season. With such a noble army of 'vets.' in the country, it is wonderful that no cure has yet been discovered for it."

ANTISEPTICS AND MICROBICIDES.—MM. Cadiac and A. Meunier have ascertained that the essences of thyme and serpolet kill the microbe of Typhoid Fever in thirty or thirty-five minutes, and that of Glanders in thirty-eight minutes. In five minutes the vitality of the Charbon bacillus is greatly modified. Thymol, serpolet, and thyme essences are powerful antiseptic agents, superior to a 5 per cent. solution of carbolic acid.

## Correspondence.

### DISHORNING OF CATTLE.

SIR,—I have read with interest, mingled with regret, the recent correspondence anent dishorning of cattle. The feeling of regret is called forth at seeing such a divergency of opinion among the leading members of the profession on a subject that, in my humble opinion, there should be no room for controversy; for I think it should be patent to every veterinary surgeon that amputation of the horns of an adult animal must be a painful, aye, I will go further, and say a very painful operation.

In the County of Northamptonshire, where I practise, a large number of cattle are bred, and a far larger number bought and grazed, but dishorning is never thought of; and I read with astonishment in Mr. Greaves' letter that he has seen dozens of horses and cattle die horrible deaths, the result of being gored. Now I do not deny that, doing a large cattle practice, I have seen wounds caused by bovine animals, but not one single case can I call to mind which had a fatal termination, and the number of wounds occasioned by the horns of cattle are, in my experience at least, a very small percentage, compared to those caused by the heels of the horse.

I spent four years of my life in South Africa (from 1880 to 1884), and while acting as Veterinary Surgeon to the Colonial Forces during the Basuto War, I had hundreds of horses and oxen under my charge; as nearly all the transport waggons were drawn by oxen, and, moreover, these oxen had exceptionally long horns, and were big powerful animals.

I was nearly twelve months in the field, and was the only veterinary surgeon at the front, and during that time not a single case came under my notice of horse, mule, or ox being gored.

So much for the necessity for the operation.

With regard to the amount of pain occasioned by the operation, I can only say this, that I have several times found it necessary to amputate a broken horn, and I can assure Mr. Greaves and the advocates of dishorning, that the operation, however skilfully performed, must be painful, the animal often bellowing with pain; and how anyone, knowing the anatomy of the parts, can assert to the contrary is extremely puzzling to me.

No, sir, many necessary operations that occasion pain, as professional men we have to perform, but do not let us go out of our way to become the advocates of an unnecessary and painful custom.

Northampton, *August 11th.* T. H. MERRICK, M.R.C.V.S.

### THE VETERINARY DEFENCE SOCIETY.

AT the meeting of the Yorkshire Veterinary Medical Society, held at Leeds on July 25th, my name is frequently referred to in the discussion upon the above subject, and to prevent misapprehension I think some of the points will be better for a little further elucidation. From the remarks of some of the speakers, it would appear that they are in total ignorance of what has been going on in the VETERINARY JOURNAL for the last twenty-five

years, in reference to the National Veterinary Benevolent and Mutual Defence Societies. One of the speakers, Mr. Parlane Walker, calls me the secretary, which I am not; and asks what we do with the money? Surely he cannot be so ignorant as he seems, or is it because he never reads the veterinary periodicals, where he would see the annual statement published as to every penny. I could give a full statement of every sixpence spent and received from the beginning, but I know nothing could satisfy men of this class. He further said "we ought to hold our meetings in London, Manchester, Liverpool, and other places, at different times, and the proceedings thus conducted from one centre to another, instead of in a hole-and-corner manner." This insulting statement shows the injustice fulminated against us, arising out of either spite or sheer ignorance, or he would have known that *all this has been done already*; we have held our annual meetings in London, in Edinburgh, in Birmingham, in Liverpool, in Leeds, in Manchester, and in other towns; we advertised the meetings and made them as public as we possibly could—the very antipodes of conducting our business in a hole-and-corner manner, as he says. As to his case that he cries so much about, our Society was never applied to, nor asked to entertain it, or it would have received every attention.

*The Officers of the Society.*

The officers of the Society were always found at their posts, wherever the meetings were held, at their own cost and the sacrifice of time and trouble; ever willing and anxious to comply with suggestions from outsiders, and to give information and assistance to all enquirers; but it was found that the members of the profession generally were too apathetic, and the attendance so meagre, sometimes not half-a-dozen, once only two—besides the officers—that the officers felt discouraged in going such long distances and meeting with so little support, and the conclusion was forced upon them that the profession decided to leave the conducting of the affairs of the Society entirely in their hands. During the year I was President, so anxious was I that the Society should become a success that I travelled over 2,000 miles, attending meetings in Aberdeen, Edinburgh, Glasgow, Newcastle-on-Tyne, London, Birmingham, Liverpool, Leeds, Manchester, Belfast, Dublin, and many other towns, wherever a veterinary meeting was held, advocating the claims of the Benevolent and Defence Society and inviting members to join. I also sent a circular to every member of the profession, showing the desirability and necessity of such a society; this effort resulted in over 100 new members during my year of office, and a corresponding addition to the funds. Since then I have been constantly advocating its claims at scores of meetings, and frequently writing in the journals with the same object, and all this without debiting the funds of the Society to the extent of one shilling. Our funds now exceed £2,425 Benevolent, and £549 Defence; total, nearly £3,000, beside several hundreds of pounds spent in Benevolent, and several hundreds in Defence, purposes. I include our worthy President, Mr. Peter Taylor, and our worthy Secretary, Mr. George Morgan, in the establishing of this success; I hope and trust these efforts of ours and their result will be put into the shade by our Yorkshire friends, Messrs. Briggs, Pickering, Bowman, Snarry, Mason, and Walker, in the establishing this new Yorkshire Defence Society, of which I wish them every success.

*The Five Pounds Deposit by the Defendant.*

The £5 deposit is asked for as a proof, or as an earnest of good faith of the defendant; it is in the nature of a contract with the Society to take up his case, examine it, and, if found expedient, to defend it. Now let us for a moment consider the nature of his contract and what it implies. In the first

place the members of council are called together to receive from the defendant a statement of his case; they carefully and deliberately consider it, discuss it and then decide on the proper and just course to adopt. It must be remembered the council consists of sixteen members of the profession, many of them have to travel considerable distances to attend the meetings, sometimes these meetings occupy two or three hours. The members of the committee are elected at the annual meeting, as the officers are. They are selected as being men of large practical experience, of good standing and mature judgment, men of business who are authorities in all horse knowledge. They have no self-interest to serve, no cost is incurred to the Society by their attendance. We find the defendant appreciates all this in every case, deposits the £5 most willingly, and never looks upon it as utterly unjustifiable, as stated at the Yorkshire meeting, and, as he sits at the council meeting and listens to the discussion on his case, every phase of it brought to the front by this body of experienced men (and let me here remark these council meetings are always well attended), he sees for himself they have espoused his cause and are taking a deep interest in his case. This of itself must be worth something to him; it must be gratifying to him to feel that the Society has taken all the anxiety and responsibility upon themselves, for him to feel that his reputation is safe in their hands, that his property is not in jeopardy, that if his case is one that can be defended all the best talent and influences will be employed to secure a verdict in his favour. And even if it cannot be defended, he is not left at sea; we seek an opportunity to bring about an honourable and amicable settlement. Surely this course must be far more valuable and of greater importance to him than the highest opinion he could obtain from any solicitor or counsel, whose horse knowledge may be very, very limited indeed, and cost three times the amount of £5. On several occasions we have spent more than this sum; on other occasions we have expended 5s. or 10s. 6d. for hire of room; on numbers of occasions we have returned the £5 entire. It is suggested that in future no part of this £5 shall be retained, only what is actually expended.

*Professor Pritchard and a Higher Court.*

The Professor, when speaking on Murdock's case, remarked, "They (the Society) brought down upon the profession, by muddling the case, one of the worst things that ever happened to the profession in their time. Who," he asked, "ever heard of a veterinary surgeon being hauled up for damages because he gave an honest opinion in an examination before that happened. If that case had been properly managed it should have been taken before a higher court, where he thought it would have been decided that if they gave an honest opinion they would not be liable." Now it is all very fine for the learned Professor to talk in this way, but it is wholly unworthy of him; either he knew at the time he propounded the query that it implied a specious falsehood, or else he is a worse-read man than I gave him credit for being. One or two instances occur to my mind at this moment, and if I had time or inclination I feel no doubt I could find a far greater number of instances happening before Murdock's case in 1878, than has ever happened since. On July 13th, 1871, Mr. Frederick John Day, V.S., of York, was "hauled up for damages because he gave an honest opinion in an examination." In 1863 Mr. Holmes, V.S., of Selby, was "hauled up for damages because he gave an honest opinion in an examination." These two cases are sufficient for my purpose, and are an answer to his rash enquiry. It will be remembered that Mr. Mitchell, V.S., of Melbourne, was "hauled up for damages" in 1872 for malpractices; also Mr. Paradise, V.S., of Dursley, was "hauled up for damages" in 1875, for negligence in the treatment of a mare.

The learned Professor sticks to it that we ought to have taken Murdock's case to a higher court—I stick to it we ought never to have taken it to any court at all. He contends we should have based our case on Murdock having giving an honest opinion, that if we could have established this in a higher court (wholly irrespective of it being our error or not) that court would decide he was not liable. But let me ask was the opinion Murdock gave an honest opinion? What is an honest opinion? Is it not an opinion formed carefully, competently, thoroughly and sincerely? Now, was Murdock's opinion so formed? I say, No! It was on the face of it an opinion formed in inexcusable carelessness or unquestionable ignorance. In either case it was unpardonable, for every one of the veterinary surgeons, both those who gave evidence for Murdock and also those who were against him, carefully examined the horse's mouth; some of them did this after the trial, October 31st, 1878, and they one and all pronounced it to be indisputably a clear and certain 4½ year old mouth, and that it must have been inevitably 3½ years in the preceding January when Murdock examined the horse. Now, I would ask, Would any man out of Colney Hatch have advised that such a case as this be appealed against, when every tittle of evidence was dead against him as clear as the noonday sun? No! take my word for it, the only muddle we made, if muddle there was, was to allow the case to go into court at all, and it certainly would have been a double muddle, and worse, if we had attempted to take it to a higher court.

There was certainly a point missed when the deputation—Messrs. Peter Taylor, John Lawson, John Cuthbert, Wm. Broughton, John H. Ferguson, and Murdock, appointed by our Committee, attended at Middlesborough to examine the horse and were quite satisfied the horse was only four years old then. The point missed was this: they did not at the time see Mr. E. W. Swan, the owner and plaintiff. This gentleman told Mr. Taylor and myself in the Queen's Hotel, after the trial, that he waited in his office all the afternoon, fully expecting and hoping that the deputation would have called upon him, and he said if the deputation had done so, and had only openly and manly admitted that Mr. Murdock was in error, he was prepared not only to have stopped the proceedings at once, but also that it should not have entailed one shilling cost on us. Now, I would ask again, is there a man outside Bedlam who would have hesitated one moment in deciding which course to adopt—peace or war? Just think—there were Prof. Williams and twelve other veterinary surgeons, besides many other witnesses, sacrificing two whole days at court and wasting £100 of the Society's money. Not one of our witnesses made any charge. The other course was to see the plaintiff and settle the case out of court with fairness, justice, and honour. It must be borne in mind that it is a serious thing to go to law; the verdict in our case was £15, but the expenses run it up to £100. Unfortunately, at that time we had no rule which gave us authority to hold converse with the plaintiff; this authority has been given since. We are just about revising our rules, and it is suggested that the entrance fee, which is £5, shall be reduced to 20s., and the annual subscription shall be 20s. per annum for five years, and then 10s. 6d. after; also that the £5 deposit shall be returned entire, or the balance, not used in actual costs, at the close of the case.

THOMAS GREAVES.

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## VETERINARY EVIDENCE IN COURTS OF LAW.

SIR,—"Faithful are the wounds of a friend," said I to my professional soul after reading your editorial on "Veterinary Evidence in Courts of Law," and a man so bold as to deny *in toto* all that you have said cannot probably be

found on the register. That professional evidence can be "purchased" is a terrible charge, and, I venture to hope, not really quite exact.

If it had not long since been proved that "two blacks do not make one white," the apologist for veterinary surgeons might point to the same discrepancy in medical testimony, and the entirely opposite views arrived at by experts equally conscientious and above suspicion of partisanship. Could all the experts in the Maybrick case, for instance, be partisans? and yet how entirely opposed was some of the evidence of medical men! I venture to think, after a great deal of experience of police courts, that veterinary surgeons give their evidence, as a general rule, in a fair and conscientious spirit. There are, however, causes militating against us which tend to bring our evidence into disrepute and our profession into distavour, especially in the country districts, besides the fact, well known to lawyers, that witnesses vary as much in their ability to give evidence as they do in height or complexion.

Among the causes militating against us may be mentioned the inferior social position which is accorded us by the public, and reflected by the bench; and here let me anticipate a reply by saying that I know that a man can *make* for himself a position, and by his own conduct and attainments command the respect of his district. True, but that position is *ready made* for him as a lawyer, a doctor, or an architect, say. It is quite different with the veterinary surgeon, who in all probability follows upon a man who learnt to touch his hat to the squire, the parson, and the *doctor*, and who saw nothing derogatory to his dignity in a close alliance with the publican, the bailiff, and the coachman of his patrons.

While local authorities are still unable to differentiate between qualified and registered, or even unregistered practitioners, we cannot expect to find the same individuals sitting as magistrates in a state of respectful receptivity, when we shall be presently called upon to give evidence. If our evidence is found to differ somewhat, it is *all* cast aside instead of being carefully considered, and the points of variance elucidated by cross-examination or questions from the bench.

That my contention is true as regards the measure of esteem in which we are held, is to me conclusively proved by the readiness of J.P.'s to admit as "expert" the evidence of any person who chooses to call himself a veterinary surgeon, and by the appointment as inspectors of persons not even registered as existing practitioners.

In addition to the wilful perverter of the truth, who may *perhaps* be found among us, there are the nervous, the self-conscious, and the egotistical, not to mention the very young members who, in seeking to advertise their attainments, render evidence in technical terms not understood by bench or bar. How many witnesses, both lay and professional, are made to say what they do not mean, and leave unsaid the very thing upon which the case turns?

Sitting at the solicitor's table, I have often distinguished the heart-beats of the witness on first being sworn, as well as the "shame and confusion of face" with which he meets his client after saying the very opposite of what he intended. Much, I venture to think, of the confused testimony arises in this way; much more through questions put demanding a "yea" or "nay," and to which neither is applicable without an explanation, which the cross-examiner purposely cuts short. As an example, let me take a cruelty case in which a veterinary surgeon is called upon to say whether or no a horse is fit to work. The professional witness may not be able to say that he is absolutely unfit for *all* kinds of work, yet he is cut short by counsel before he can give an explanation that would entirely alter the complexion of the case. The examiner (or cross-examiner more frequently, as the latter does not expect the witness to be further questioned) lays traps of this kind for the unwary, and persons *unaccustomed* to giving evidence usually fall into them, remem-

bering, only too late, how entirely their opinions have been misrepresented when presently counsel rises to address the bench, and the wretched witness remains muzzled while his evidence is distorted and perverted intentionally by a man whose social standing is assured, and who, if he were in the witness-box, would receive reverent attention.

East Grinstead, *Aug. 4th.* HAROLD LEENEY.

## WORTHY OF NOTICE.

DEAR SIR,—I enclose you a cutting from the New Orleans *Times—Democrat*, of August 4th. Should you care to give it space in your valuable journal, it may show to the younger members of our profession, who are waiting and struggling for an opening at home in the old country, that there are some good chances in the Southern and Western States for steady, intelligent, and energetic young practitioners. Apologising for troubling you.

W. H. DALRYMPLE, M.R.C.V.S.,

State Agric. Expt. Station, Baton Rouge, La.

"Educated veterinary surgeons are scarce in the South, and it has been suggested that some of our ambitious young farmers who are ambitious to obtain a degree would do well to strive for that of V.S., as M.D.s are largely in excess of the demand. A first-class horse-doctor would be a valuable acquisition to any community in the Southern States. That the same need exists at the West will be seen by the following from the *Orange Judd Farmer*:—

"'Among the professions, there is nothing offering a better opening than veterinary practice. Competent veterinary surgeons are scarce; quack veterinarians are plenty, and the worst of all cranks.'"

## THE DOUBLE WINDOWS AT THE COLLEGE.

SIR,—The double windows were put in for the purpose of deadening the noise from the traffic in the street, which was intolerable, and also to improve the acoustic properties of the room, which were very bad. Both of these purposes have been attained in a very satisfactory degree. It is now objected that the woodwork of the frames obstructs the full view of the stained glass windows behind them, and so spoils the effect. It must be explained that the new inner windows are French folding; each has a bar down the centre, and a bar across near the top; *these are as narrow as possible* to be efficient, and not a hair's-breadth of the stained glass in any other respect is interfered with; the wood is thoroughly seasoned, and the frames are *made with the greatest possible care and neatness*, and the stated obstruction *is so slight* that, to my mind, none but a fastidious person could object to it.

The following are the disadvantages of the windows being placed outside:

1st. The ventilators could not be opened, neither could the windows be opened.

2nd. The windows could not be cleaned, only at great trouble by getting men and long ladders.

3rd. They would be exposed to the effects of the weather, to become rotten and warped.

4th. They would destroy the symmetry of the building, and would be an eyesore outside.

Now, they can be opened with the greatest ease, and a girl with steps can clean them; they will preserve the colours of the stained glass of the windows; if, at any time, some distinguished person wants to examine particularly the subjects of the stained glass windows, he has only to turn a little slide and throw the double windows completely open, in order to leave

the stained glass windows fully in view. The opening of these inner windows is the easiest thing in the world, a child can do it.

I ask the Committee and the Council to use their usual common sense in this matter, *and not be led away by sentiment.* We do not go into the Council Chamber for the express purpose of admiring these windows and studying the history of the subjects, beautiful though they may be. *We go into the room to conduct our own business*—matters often difficult, intricate, and important, requiring very careful consideration. Under these circumstances, is it not of the greatest importance to us to be able to carry on our deliberations in a room in which the stillness and quiet enables you to hear and understand every word spoken, instead of a room whose acoustic properties, together with the noise from the street traffic, prevents you from hearing half the words spoken? Will it not be much the best to let well alone?

THOMAS GREAVES, F.R.C.V.S.

## NATIONAL VETERINARY ASSOCIATION.

DEAR SIR,—Will you kindly allow me to inform the members and the profession generally, through your columns, that I have, up to the present time, received no official information respecting the general meeting that was to have been held in Dublin about the time of the Horse Show there.

When I receive the news the members will be made acquainted with it at once; so I shall be glad if they will accept this as the answer to the many inquiries I have had. GEO. W. BANHAM, *Hon. Gen. Sec. N.V.A.*

Downing Street, Cambridge.

## Communications, Books, Journals, etc., Received.

COMMUNICATIONS have been received from F. S. Billings, Chicago, U.S.A.; E. Stanley, Sydney, N.S.W.; E. A. Hollingham, London; J. A. Nunn, A.V.D., Lahore; F. Smith, A.V.D., Aldershot; S. Villar, Harrow; J. Mills, A.V.D., Chatham; H. Leeney, East Grinstead; T. Greaves, Manchester; J. A. McLaughlin, U.S.A.; H. Kidd, Hungerford; Thos. B. Goodall, Christchurch; T. H. Merrick, Northampton; W. H. Dalrymple, Baton Rouge, U.S.A.; R. Ward, Baltimore, U.S.A.; G. A. Banham, Cambridge; P. Pike, Manchester.

BOOKS AND PAMPHLETS: Bulletin des Sceances de la Societe Nationale d'Agriculture de France; Proces-Verbal de la Academie Royale de Medecine de Belgique; *A. Lungwitz*, Ueber Form veranderung der Pferdehufes, etc.; *P. Paquin*, Texas Fever; *F. Smith*, Histology of the Skin of the Elephant; Johns Hopkins Hospital Bulletin; Encyclopedie d'Hygiene et de Medecine Publique; *E. Frohner*, Lehrbuch der Toxikologie fur Thierarzte; *G. Chenier*, La Ferrure Watrin; *H. Frick*, Grundriss der Antiseptischen Wundebehandlung; *Dr. R. Schmalz*, Topographische Anatomie der Korperhohlendes des Rindes.

JOURNALS, ETC.: *United Service Magazine; Journal of the Society of Arts; Journal of the Royal Agricultural Society; Moderno Zooiatro; Echo Vétérinaire; Recueil de Médecine Vétérinaire; Repertorium der Thierheilkunde; Wochenschrift für Thierheilkunde und Viehzucht; Thierarzt; Hufschmied; Journal of the National Agricultural Society of Victoria; Journal of the Society of Arts; Clinica Veterinaria; American Veterinary Review; Live Stock Journal; Lancet; Revue Vétérinaire; British Medical Journal; Mark Lane Express; Journal de Med. Veterinaire et de Zootechnie; Annales de Médecine Vétérinaire; Deutsche Zeitschrift für Thiermeaicin und Vergleichende Pathologie; Repertorium der Thierheilkunde; Edinburgh Medical Journal; London Medical Recorder; North British Agriculturist; Journal of Comparative Medicine and Veterinary Archives.*

NEWSPAPERS: *Todmorden Advertiser; Times; Leeds Mercury; Baltimore Sun.*